

InfoWorld

The Newsweekly for Microcomputer Users

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Escape from 'Castle Wolfenstein'

IBM Spawns Cottage Industry

COMDEX Wrap-up

UNIX Price Falls

CP/M on a Chip



NEWSPAPER

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The Newsweekly for Microcomputer Users

A fitting end to the year of the personal computer

COMDEX '81 in Las Vegas bigger than ever

By John Markoff, IW Staff

LAS VEGAS, NV—With the rest of the American economy deeply mired in recession, the giant COMDEX '81 provided a fitting counterpoint, proving that 1981 has truly been "the year of the personal computer."

This year's COMDEX spilled out beyond the walls of the mammoth Las Vegas Convention Center, as dealers and distributors congregated with manufacturers of hardware, software and peripherals in an atmosphere that can only be described as euphoric.

Attendance for this year's show ran close to 25,000, and more than 648 companies occupied a total of 1650 booths, giving those who wanted to see it all the almost unmanageable task of covering more than two miles of aisles.

The exhibition hall itself took on a

circus atmosphere, as magicians, mimes and robots that danced competed with each other to attract attention to exhibitors' booths.

There seemed to be no end to the lengths that some companies would go to grab innocent passersby and give them a sales pitch. One company brought in a military field tent and had a General Patton look-alike give an animated briefing on "OEM wars" every couple hours. Several other corporations constructed immense two-story booths with upper floors for private tête-à-têtes.

Fortune Systems Corporation's 32/16 was clearly the technological talk of COMDEX. The venture-capital-financed startup company brought its 68000-based desktop computer with 128K, UNIX and 1.5 megabytes of floppy-disk capacity in under \$5000,



IBM Chief Economist, Dr. Alvin J. Karchere, spoke at COMDEX '81. He said the personal-computer industry would survive a recession.

and as a result the Fortune booth was packed for the entire four days of the show.

Other 16-bit systems that drew in-

terest included the Three Rivers Perq; Convergent Technology's 8086-based system; Tricomp's Z8001; the Victor 9000; and Forward Technology's 68000-based CPU board, which is a cousin of the Stanford SUN personal work station.

The Perq was particularly exciting because Three Rivers seems to have packaged many of the research advances made at Xerox's Palo Alto Research Center. By including such features as a Smalltalk-like programming environment and an Ethernet network, Three Rivers has created a system that may compete directly

[continued on page 8](#)

Digital Research puts CP/M on a chip

Announces new managers and acquisition of software suppliers

By Maggie Canon and Michael

Swaine, IW Staff

LAS VEGAS, NV—COMDEX was the occasion of an official announcement by Gary Kildall, president of Digital Research: Intel will be providing a silicon version of the CP/M-86 operating system for the Intel 8086 16-bit processor.

The announcement was made at a

press conference at which Kildall also announced Digital Research's acquisition of MT Microsystems, supplier of Pascal/MT+. Kildall came to the press conference directly from a well-attended conference on 16-bit technology at which the big news was the major price reduction on Digital Research's 16-bit competitor, the UNIX

operating system.

According to Kildall, the new firmware version of CP/M will not require a disk, making it well suited for remote computers interconnected in a local distributed network and sharing a large-capacity disk drive. This product could bring down the cost of such network nodes, since disk drives cost more than semiconductor chips.

The new chip is a very-large-scale integrated (VLSI) circuit that contains 64K of read-only memory (ROM). It is designed to work with the Intel iAPX-86 16-bit microprocessor.

Further cementing its relations with Intel, the prime source of the 8080 and 8086 microprocessors, Digital Research has agreed to supply Intel with customized versions of CP/M, CP/M-86 and MP/M-86 for Intel's microcomputer boards and systems.

In this context, it is interesting that Intel's marketing manager for OEM modules operation, John Bowley, has left to become Digital Research's chief operating officer.

Bowley's appointment is part of Digital Research's preparation for the

[continued on page 8](#)

W. Electric cuts UNIX prices

By Michael Swaine, IW Staff

LAS VEGAS, NV—The day before the doors opened on the COMDEX show here, Western Electric announced a major adjustment in its pricing of the UNIX operating system, a change that should make it competitive in the microcomputer arena.

The new pricing affects the cost of source code, distribution, licensing and royalties. The price of a source license has gone up from \$28,000 to \$43,000, while a distribution license has dropped in price from \$50,000 to \$25,000, with the full amount now being credited against royalties. The royalties are now and start at \$100 for a single user or \$250 for from 4 to 10

[continued on page 8](#)

INDEX

News	1
Features	26
Editorial, Letters	30
Viewpoint	31
According to Garetz	34
Software	36
Hardware	50
Book Reviews	58
Classifieds	61
End of File	64

SPECIAL SECTION

"As data-base-management software for micros grows in power and complexity, more and more of that software has earned the right to be called a data base—even if it only simulates a true data base." Sound interesting? Please turn to page 26 for more on data bases.



This One



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HELP	SUBTOTALING
DO	ON
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STORE	TOTALS ONLY
USE	PERCENTS
SELECT	ACCUMULATING
RECODE	INCREMENTING
TITLE/SUBTITLE	ON PRINTER

LEVEL II COMMAND SUMMARY

All of Level I plus

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IF . . . THEN . . . ELSE	

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More programming flexibility promised with new UCSD p-system

By John Markoff, IW Staff

LAS VEGAS, NV—Portability is a topic that gets Al Irvine's blood flowing. The affable, bearded director of engineering at SoftTech Microsystems likes nothing better than a chance to extol the virtues of the UCSD p-system, a programming environment that today allows software portability between more than 20 micros and minicomputers.

"Working in the UCSD-p environment will bring about a real increase in the quality of software," Irvine argues. "With this system, lines of code don't have to be rewritten when a program

is transferred between machines. Now programmers can concentrate on perfecting the programs that they have already written, rather than simply reworking old ones."

The concept of an entire programming environment like UCSD-p is necessary for true portability, he says. When you use the UCSD p-system on a new machine, everything is moved—new editing, file handlers, compilers and operating systems.

This is true portability, Irvine laughs. "Being a *little* bit nonportable is like being a little bit pregnant."

The unique quality of the p-system

is that it utilizes a pseudomachine, or "p-machine." This is a machine-independent code into which programs, rather than the native code of the computer that is being used, are compiled. A p-machine emulator—a program in the native code of the computer—is provided for each system on which the UCSD p-system runs. This hooks to the native machine language of each computer.

SoftTech Microsystems has an exclusive license agreement for the UCSD p-system and UCSD Pascal with the regents of the University of California where the p-system was developed.

The company is a subsidiary of SoftTech, a supplier of software for large systems. SoftTech set up the Microsystems Division two years ago in an effort to enter the growing market for microcomputer software.

At COMDEX SoftTech Microsystems announced the introduction of the UCSD p-system version IV for the Apple computer. The UCSD p-system can now be used on personal computers and microcomputer development systems based on the 8086/8088, Z80, 8080/8085, 6502, 6809, 9900, PDP-11 and LSI-11 microprocessors.

Add-ons and turtle graphics

The company also announced a series of add-on products for UCSD-p to be available early next year. They include native-code generators for the 8086/8088, Z80 and 8080, print spooler, a computer-aided instruction package for UCSD Pascal, a CP/M access facility and turtle graphics.

The addition of turtle graphics to the p-system will allow programmers to develop portable graphics software and use any languages supported by the p-system (including UCSD Pascal, FORTRAN, BASIC and assembly language) to create graphics software, according to Irvine.

The portability of UCSD-p has been recognized by a number of large corporations, according to Irvine, and they have not taken UCSD-p licenses for internal use in order to standardize their own applications software. Corporations like Texas Instruments, Phillips and Boeing are now using the p-system widely.

For the future, Irvine says that the Microsystems Division is doing development work with UCSD-p that will lead to increased portability within local-area networks.

"We need to build networks of small powerful computers that will mirror the organizations that use them," he says. These distributable networks will include many specialized and extremely flexible subsystems including print servers, file servers and mainframe computers.

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New program generators open doors for novices

By Paul Freiburger, IW Staff

"High thoughts must have high language," reads an ancient Greek maxim. Aristophanes' wisdom prevails, even in a new generation of computer software.

In response to a demand for better applications software packages and a desire to offer nonprogrammers a chance to create their own software, program generators are appearing in an increasing number.

Two new program generators are PEARL Personal Programmer from Relational Systems of Salem, Oregon, and

Autogrammer from Roklan Corporation of Rosemont, Illinois.

Relational Systems (previously known as Computer Pathways) developed one of the first program generators on a micro. PEARL (Producing Error-free Automatic Rapid Logic) Like many of these programs, PEARL had been praised by software evaluators; however, like many such generators, it was limited primarily to the creation of file-management programs.

According to Relational president William Stow, the new PEARL, cur-

rently available for the Osborne and Zenith Z89 computers, can create a variety of programs.

Autogrammer's creators make a similar claim. In addition, they boast that theirs is the first program generator written in assembly language that produces assembly-language programs.

These products make up a new generation of software because they are so different from the previous three categories of programs.

The first generation of software in the forties was used by hardware tech-

nicians and was written in machine code.

Next came programs that were written in assembly code. With this advance, programmers were less constrained by the particular characteristics of a computer.

Third-generation programs became popular in the sixties. Characterized by the use of high-level language compilers such as FORTRAN, BASIC and COBOL, this generation has eliminated some of the debugging complexities of assembly code by reducing the number of statements in a program.

Nevertheless, software innovators such as those at Relational Systems and Rocklan Corporation believe that their products are the harbingers of a new generation. In this new breed, programs will be written in English, possibly by people who are unfamiliar with details of programming as they have been understood in the past.

"The program generator will allow for more personalized packages for the end user," says William Stow. "He won't have to rely on generalized software developed for general purposes."

Out of a job

According to Stow, one obstacle in advancing program generators is the reluctance of programmers to accept them. But he maintains that programmers' skills will be needed even more in this new generation of software. "Programmers are capable of understanding a problem and creating solutions," he says. "But how too much of their time is spent in coding."

According to Stow, programmers' time would be better spent in advising businesses on the sort of programs they need to create.

Jim Gonzalez of Roklan goes one step further. He says that "people who haven't programmed will be more successful as programmers because they have no preconceived ideas."

He concedes that program generators could ultimately phase some programmers out of a job. "The joke around the office is that we're developing a program to put us out of work."

Autogrammer will soon be available in versions for the three Radio Shack computers and the CP/M operating system.

8086 Super-micro

8 Mhz. - 16-bit - S-100 bus - 128K 70 nsec. RAM

Computer Benchmarks - All systems running the same BASIC program.

Manufacturer - Model	Class	Operating System	Language (Type)	Run Time (Seconds)
IBM 3033	Mainframe	VS2-10/RVYL	Stanford BASIC	10
Seattle Computer System 2	Micro	MS-DOS	Microsoft BASIC (C)	33
Digital Equipment PDP 11/70	Mini	n/a	BASIC (I)	45
Prime 550	Mainframe	PRIMOS	BASIC V16.4 (I)	63
Digital Equipment PDP-10	Mainframe	TOPS-10	BASIC (I)	65
IBM System 34	Mainframe	Release 05	BASIC (I)	129
TEI System 48	Micro	MAGIC 1.0	Microsoft BASIC (C)	178
Hewlett-Packard HP3000	Mini	Time Share	Microsoft BASIC (I)	250
Seattle Computer System 2	Micro	MS-DOS	Microsoft BASIC (I)	310
Alpha Micro AM-100/T	Micro	AMOS 4.3a	Alpha BASIC (SC)	317
Digital Equipment PDP 11/45	Mini	n/a	BASIC (I)	330
Dan General NOVA 3	Mini	Time Share	BASIC 5.32	517
Ohio Scientific C4-P	Micro	OS65D 3.2	Level 1 BASIC (I)	680
North Star Floating Point	Micro	NSDOS	NorthStar BASIC (I)	685
Radio Shack TRS-80 II	Micro	TRS-DOS 1.2	BASIC (I)	792
Apple II+	Micro	DOS 3.2	Applesoft II (I)	960
Cromemco System 3	Micro	CDSOS	32K BASIC (I)	1074
Commodore Pet 2001	Micro	n/a	Microsoft BASIC (I)	1374
IBM 5100	Micro	n/a	BASIC (I)	1951
Vector MZ	Micro	n/a	Micropolis BASIC (I)	2251

* C = Compiler; I = Interpreter. Times (except for Seattle Computer) taken from August 1981 issue of Interface Age.

Seattle Computer System 2 consists of 8 Mhz. 8086 CPU set, 128K of 70 nsec. static RAM, double-density disk controller, 22-slot TEI constant voltage mainframe, a cable for two 8" drives, and MS-DOS operating system (also called 86-DOS, IBM PC-DOS, Lifesboat SB-86). The system is fully assembled and tested and ready to run with the addition of disk drives (we can supply) and terminal. Price: \$4185. 8087 Adapter also available.

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December 14, 1981

Victor Business chosen to peddle Peddle's computer

Victor 9000 is new 16-bit desktop micro for CP/M-86 and MSDOS

By Maggie Cannon, IW Staff

LAS VEGAS, NV—Victor Business Products introduced a 16-bit desktop computer that runs CP/M-86 and MSDOS, at COMDEX. The Victor 9000 business microcomputer will retail for \$4995.

The Victor 9000 was designed by Chuck Peddle, formerly of Commodore Business Machines. Rumors had been flying that Peddle would announce his new computer at COMDEX, but no one had guessed which company Peddle would choose to

market his new product. According to Peddle, he chose Victor Business Products because of its well-established distribution channels through office-equipment stores.

"A significant strength is our distribution network," said Edwin Carlson, president of Victor. "Our organization in the United States consists of 49 branch sales and service offices nationwide and a large dealer network. Our business-computer system will also be marketed by Victor sub-

diaries in Canada, Mexico, Europe, the Middle East, Australia and Latin America."

The standard configuration consists of a CRT, two 5 1/4-inch floppy-disk drives (1.2 megabytes of disk capacity), a keyboard and 128K of memory.

The RAM memory of the Victor 9000 is expandable to 256K or 512K. The terminal sits and swivels, and the screen has a dual format. In the normal mode, it displays 80 x 25 lines. In its expanded format, the character genera-

tor displays 132 columns by 50 lines. The format accommodates the popular financial spread-sheet programs. The high-resolution screen can address an 800 x 400 matrix.

Available software includes WordStar, VictorCalc, Time Manager, accounts payable and receivable, general ledger, payroll and other business-related packages. Pascal, FORTRAN, two COBOL compilers and two BASICs are also available.

According to Peddle, color graphics will be available for the Victor 9000 sometime in 1982. ■

Context MBA

continued from page 1

will require 192K RAM to run on the IBM Personal Computer and 256K for the Apple III.

The MBA is targeted at middle-level managers and is intended for use as a management tool. According to Brian Fischer, the vice-president and co-founder of Context Management Systems, the new software package includes several sophisticated features. One feature the MBA program includes lets users display up to four windows of information simultaneously. For example, it is possible to show graphics, editing, spread-sheet and data-base-management data on the same screen. Users can also move information between different windows.

All five program modules use the same command, which is similar to the slash commands used in Personal Software's VisiCalc.

Gib Hoxie, president and chairman of Context Management Systems, was previously with IBM and was a partner at Booz-Allen and Hamilton. Brian Fischer, Context's vice-president, is a former Hewlett-Packard and Booz-Allen employee.

The product is scheduled for release in February 1982. ■

CP/M on a chip

continued from page 1

substantial growth the company expects following its recent infusion of venture-capital funding. Another symptom of the firm's growth is its recent acquisition of Compiler Systems and of MT Microsystems of San Diego, California, the latter arrangement just having been announced at COMDEX.

MT Microsystems supplies the Pascal/MT+ programming language compiler. The firm will become a part of Digital Research's language division under DR's vice-president, Gordon Eubanks, Jr., who sees the compiler as a natural extension of the company's language offerings for professional programmers. The MT version of Pascal was designed for professional applications.

In addition to bringing in new management expertise and new software suppliers, Digital Research has also signed Hamilton-Avnet to distribute its software products. Hamilton-Avnet is one of the world's largest distributors of electronic and computer products. ■

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Fitting end

continued from page 1

with the Xerox Star.

COMDEX '81 also proved that the rush to build powerful, portable personal computers has just begun. No companies were competing yet with the performance and price of the successful Osborne 1, but several potential competitors are looming on the horizon.

For example, Telcon, a manufacturer of data-communications terminals for reporters, is planning to bring out a 6809-based system that will run under CP/M, includes 80 x 24 display and weighs about 19 pounds. Telcon's

main selling point is ruggedness, and at one point a Telcon salesman lifted a demonstration terminal a foot and a half above the table, then dropped it—while this reporter cringed. To its credit, the display screen didn't even flicker.

Ontra, Novation and Matsushita also had readily portable systems; the latter two appeared to have less-than-functional keyboards, however. The Novation Infone 1000 was one of those devices that claims to include everything but the kitchen sink. For \$1150, the system includes a terminal, switchable 300-to-1200 baud modem, telephone, one-line screen, clock, simple text editing and 6K RAM.

To its discredit, however, Novation also had one of the sleaziest product demonstrations. The company's demo included the "Rhonda 500," a scantily clad woman who did a robotic mime act, supposedly demonstrating how the Rhonda 500 could easily be replaced by the Infone 1000.

COMDEX 81 was not without its detractors: "Oh great, another Z80 CP/M system" mouned a disgruntled venture capitalist after a day of wandering the aisles. Other observers commented on the large number of "me-too" systems, and many newcomers to the desktop-computer market were clearly nervous after looking around and seeing how fast the competition

was running.

One worried executive buttonholed two *InfoWorld* reporters for almost an hour, trying to extract information on channels of distribution.

Possibly the saddest note at COMDEX '81 was the obvious glee with which the passing of the era of the microcomputer hobbyist was noted. "We love the computer hobbyist, particularly when he has his soldering iron hanging out of his hip pocket," said Sheldon Adelson, Interface Group President, in his welcoming speech. "But today a mass market has emerged; this is the most exciting mass market since Henry Ford started selling the automobile." ■

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COMDEX Sports International Cast



Left: COMDEX '81 brought the personal-computer industry to Las Vegas. Manufacturers did a brisk business with dealers and distributors in the massive Las Vegas Convention Center. Right: Roy Bright, managing director of Intématique, the international arm of the French government's ambitious videotex program, demonstrates a terminal for the electronic directory that will begin replacing the phone book in parts of France next year.

In the midst of covering the COMDEX show, *IW* staffer John Markoff took time to take some pictures of various aspects of the event.



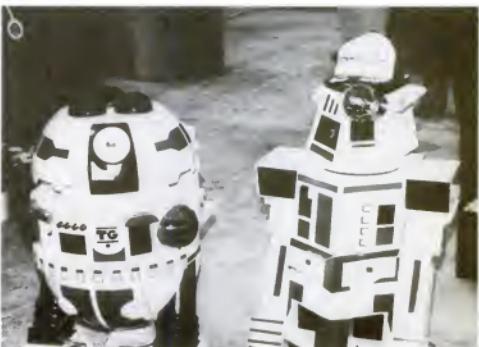
Below: Novation claims that its Infone 1000 will surpass "Rhonda 500" (standing on the right). Rhonda pointed out that the fellow on the right was "an idiot." Right: Staffers Rossi Hollinbeck and Lynn Matthes sit at InfoWorld's booth at COMDEX '81.



Lower right: Almost a dozen robots were at COMDEX, dancing, singing and occasionally terrorizing young children. These cute little creatures acted as greeters at the Sperry-Univac booth. Lower left: Through its marketing arm, Quasar, Matsushita, brought its recently released HCC Link pocket computer, which fits in a briefcase, to COMDEX.



Above: Tandberg, a Norwegian corporation, brought an "ergonomic" terminal to COMDEX. Tandberg claimed that when the terminal was introduced for use by the Norwegian Phone Company, employee sick days decreased dramatically.



Cottage industry blossoms around IBM micro

By John Markoff, *InfoWorld*

LAS VEGAS, NV.—Every microcomputer hobbyist is familiar with the overwhelming range of add-on boards, peripherals, third-party software and publications available for Apple, Radio Shack and S-100 computers.

This year's COMDEX gave ample evidence that a healthy and diverse cottage industry is sprouting up around the newly released IBM Personal Computer.

The personal computer, which was conspicuously absent from the IBM display booth at COMDEX, made its

presence felt elsewhere on the exhibition floor.

There is little doubt that IBM will have a significant impact on the microcomputer world. One rumor making the rounds was that IBM had already placed an order for 225,000 8088 processor chips for next year—a number that has made an obvious impression on microcomputer software and hardware manufacturers.

To prove its credibility, the IBM Personal Computer has already stimulated the appearance of a new computer magazine, *PC, The Independent Guide*

to *IBM Personal Computers*, scheduled to offer its premier issue in January of 1982.

Virtually every small software house that *InfoWorld* questioned at COMDEX indicated that they had software for the IBM on the way.

Inside IBM itself, software designers and other employees who have traditionally been tightly restricted from doing outside work, have been given carte blanche to write software for the personal computer.

Microsoft, designers of the MDSOS operating system for the IBM, has an-

nounced Multiplan, its own electronic spreadsheet, which will appear in an IBM Personal Computer version soon. Microsoft is also likely to release some sort of RAM expander for the IBM.

Probably the most ambitious offering for the IBM Personal Computer to date is from TecMar, a small-component manufacturer located in Cleveland. TecMar came to COMDEX with an entire family of add-on boards ranging from a 256K RAM board to a speech synthesizer, an expansion box and a 5-megabyte Winchester disk and

continued on following page

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Sixteen-bit systems abound at COMDEX in Las Vegas

By Michael Swaine, IW Staff

LAS VEGAS, NV.—"You seem to be the hit of the show," one visitor to the Fortune booth said to Fortune president Gary Friedman. Friedman shrugged it off nonchalantly, but the crowd around the booth where the new San Carlos, California, firm was showing its 16-bit microcomputer was evidence that the 16-bit machine is being taken very seriously.

Several computers that incorporated 16-bit processors were exhibited at COMDEX, but they were by no means all in direct competition with one another. The computers ranged from board-level products through OEM systems and components, to some smoothly packaged consumer products. The new machines also ranged from personal computers to systems clearly designed to take on

minicomputer competition.

Forward Technology, of Santa Clara, California, showed its line of single-board computers (SBCs), including an 8086 SBC with an optional FORTH monitor, and a 68000 SBC, which also has the FORTH option and comes with up to 256K RAM on the board. Forward Technology also showed an ancillary board for the 68000 SBC, a graphics controller that was driving a display from LucasFilms.

MicroDaSys of Santa Monica, California, exhibited its 68000-based machine with a 6809 processor for I/O and memory management. The firm

was also promoting its seminars on 68000 technology.

Codata and Computhink of Sunnyvale, California, both brought 68000-based systems with some variant of the UNIX operating system. Tricomp, with offices in El Monte, California, showed a Z8001-based system, also with a UNIX variant (Microsoft's XENIX).

A less conventional-looking system was demonstrated by Convergent Technologies of Santa Clara, California. Convergent's 8086- and 8088-based computers are packaged separately from the terminals, in a ver-

tical box that also serves as a sort of clipboard.

Wicat of Orem, Utah, and Fortune both brought 68000-based systems: Fortune's is built around UNIX and Wicat's support UNIX as well as its own operating system. Wicat was also offering a graphics terminal that incorporated a Z8000 processor.

Plexus Computers of Santa Clara, California, brought its P/40, a computer designed to run UNIX, and also designed to compete in the minicomputer arena. Typical P/40 units support eight users and cost about \$50,000.

continued from preceding page

"We camped on the doorstep of the Sears business store in Chicago and got the first two machines that were sold," said Carolyn Alpert, a vice-president at TecMar. "We took them home and hooked them up to our logic analyzer and began our design work immediately."

Actually TecMar, which had industrial and OEM experience designing 8086 systems, began planning as soon as they heard rumors that IBM had chosen the 8088.

David Wertman, vice-president of engineering for TecMar, said IBM had been cooperative with TecMar's development work and had indicated interest.

An IBM observer at COMDEX said essentially the same thing: This time the company is pulling back the curtain a little and actively encouraging outside help. This is a new posture for the computer giant, radically different from its attitude toward plug-compatible manufacturers in the mainframe industry.

Looks count

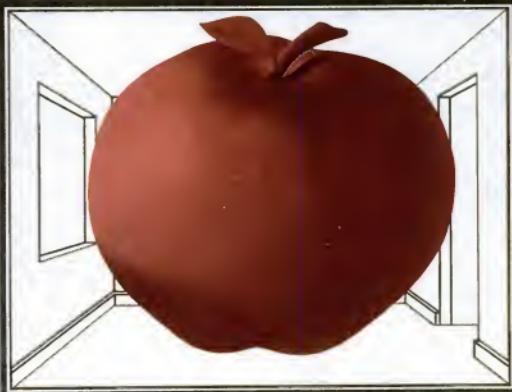
TecMar's 5-megabyte Winchester (and the expansion chassis it sits in) has raised eyebrows here. The entire unit, which is designed to match the IBM processor cabinet in appearance, is priced at \$2995, substantially less than Apple's newly introduced Profile hard-disk system.

"TecMar is right on the money," said Jim Edlin, editor of PC.

Edlin feels that cottage industry will take off around the IBM, but he insists that it will be quite different from the "hobbyist" industry that has grown up to support the Apple. He argues that plug-in boards and software are going to have to be attractively packaged for the new IBM buyer.

"The IBM Personal Computer buyer is someone who has had half a decade of opportunity to buy an Apple. It took the name IBM to pull them in, and the fact that it looked good is important," he said. "Apple and Tandy have awakened a great deal of interest, and, although I know Apple hates to think it, their advertising has created a lot of sales for IBM."

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Free computer terminals for a million French families

By John Markoff, IW Staff

LAS VEGAS, NV—Advocates of "the electronic information revolution" have so far stumbled over the fact that only a tiny fraction of homes and offices actually have terminals to connect to information sources.

Traditional wisdom has been that some kind of synergy is needed involving falling hardware costs and useful data bases to make the revolution a reality.

Now the French government is do-

ing something to force the market. Télématic, the French national program to advance electronic-information technologies, has announced plans to offer as many as a million French citizens free terminals as part of a massive electronic-telephone-directory experiment that may eventually replace printed directories in all French households.

Videoex observers have known of a plan to install 300,000 terminals in homes in a province in western France

for some time; however, it was announced for the first time at COMDEX that the new French government plans to place orders next year for another 300,000 to 600,000 terminals.

These extra terminals will extend the trial to Paris. A portion of the ordered terminals will be aimed at the professional market and will be treated as an open-ended tool for the businessman.

Users will be able to configure the terminals as personal work stations

with processing and printing capabilities of their own.

The scale of the experiment is staggering. "I guess if you add together all the videotex systems in the world today (Prestel, videotex, and quasi-videotex systems like The Source) this one trial will dwarf all of them," says Roy Bright, managing director of Télématic, the international marketing arm of France's Télématic program.

Télématic had a large booth at COMDEX this year, representing several different French manufacturers, such as Télétel and Matra, and showing off the capabilities of Télétel, the French videotex system.

The booth highlighted the indirect impact that the French experiment may have on the American videotex market. Bright stressed that the huge order the French government is placing for terminals will soon bring the U.S. cost down to the \$300 price range.

The reduced prices, Télématic hopes, will create a significant market for integrated electronic data-base systems (which include not just receiving terminals, but equipment for generating data bases and storage systems as well).

Today, the French electronic directory experiment is still in its earliest stages. Last May 1500 French homes and businesses in the Ile et Vilaine region of western France began using electronic directories. By the beginning of 1982 that trial will be expanded by up to 270,000 volunteer households in the same region.

The French are also conducting a simultaneous teletext experiment in Vélez, Versailles and the Vale of the Bièvre, suburbs of Paris, according to Bright. This experiment, known as Télétel 3V, began in March 1981 and is scheduled to last 18 months.

It involves 2500 homes hooked into a nationwide network of computer services. Participants are able to bank, shop, make hotel and holiday reservations and have immediate access to information and news.

Some observers have wondered whether Mitterrand's socialist government would maintain an aggressive commitment to the new electronic technologies. Bright says emphatically that it has. "As far as the commitment to the national product, it's just as strong as ever."

"In terms of the sociological implications, they have said that there must be more account taken of society's reaction to this. The consequence of that decision is to say that the 300,000 users in the trial next year should all be volunteers, where before, under the previous government, you were going to be given a terminal whether you wanted one or not."

The first American experiment with French videotex technology is scheduled to begin in December. First Bank System, which is headquartered in Minneapolis and has branches in five states, is installing 285 terminals with selected bank customers for the test. Users will be able to bank, shop and receive news from the Minneapolis Star-Tribune.

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COMDEX exhibits show new interest in hard disks

By Michael Swaine, IW Staff

LAS VEGAS, NV—It was clear from the profusion of drives on exhibit at COMDEX that sealed-unit hard-disk drive technology has arrived in the micro-computer marketplace. It was less clear, however, exactly what technique would predominate for backing up these hard disks, but there were some signs.

Winchester disk technology, a level of sophistication beyond the floppy-disk storage common among micro-computer users, has been dropping in price.



Mitsubishi Mini-Flexible Disk Drive

The result has been the emergence of a large number of drive manufacturers, many producing 5 1/4-inch drives with 5-megabyte, or greater, capacity, and many avowedly intending to become "the standard" or "the McDonald's" of the industry.

Those manufacturers who intend to survive may have to think in such grandiose terms. Most observers seem to think that the industry cannot support the number of suppliers of Winchester drives now in existence. "There's going to be a shakeout in 1982," Robert Harp, a vice-president at

Vector Graphic of Thousand Oaks, California, stated flatly.

Apple had its Profile 5-megabyte hard-disk drive for the Apple III at COMDEX; there were other consumer-directed drives, as well as a number aimed at OEMs. OEM prices for Winchester drives are now under \$1000.

Another disk demonstrator at COMDEX was Mitsubishi, with the addition of its M4853 5 1/4-inch Mini-Flexible Disk Drive to the Mitsubishi product line.

An interesting approach to storage and backup problems has been taken

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by Arnlyn, of San Jose, California. What they showed at COMDEX was a sort of floppy-disk "jukebox" with a diskette picker that selects the desired one among five floppy disks it can hold at one time.

For some manufacturers, the backup question is moot. Konan Corp., of Phoenix, Arizona, producing add-on Winchester drives for Apple II and other computers, is selling to people who already have a backup device in the form of the existing floppy-disk drives on the system.

But anyone trying to decide on a system containing Winchester storage has to face the backup question. There are floppy disks of different sizes and different recording densities. There is also the cartridge hard-disk option, less expensive than it once was.

Then there is tape storage, once the primary medium of off-line storage for microcomputers, but more sophisticated in its present incarnation. One can get reel-to-reel tape storage for a microcomputer, or cartridges—and there are important distinctions beyond this, such as whether or not to get a streaming-tape drive. And then there is videotape.

Roy Parker, president of Laredo Systems, of Santa Clara, California, predicted that tape storage would turn out to be the most cost-effective backup technique for hard disks in 1982, and that fixed/removable disks would become the most effective storage method the following year.

One company announced a comprehensive fixed/removable package at COMDEX. Data Peripherals, of Sunnyvale, California, has two units, both identical in size and appearance and both fitting into spaces designed for 8-inch floppy-disk drives. One is a 42-megabyte sealed Winchester drive, and the other is a 10-megabyte sealed-cartridge drive. Both units can be driven by the same controller.

Alpha Microsystems, of Irvine, California, and Cromemco, of Mountain View, California, are two companies that have offered reel-to-reel tape drives. These systems are a good deal more expensive than the tape recorder you might have bought with your TRS-80 Model I, of course.

Redundancy in recording process

Alpha was exhibiting another tape storage system at COMDEX, however. Alpha now supports videotape recorders. Because of the unreliability of the medium for data-storage purposes, Alpha has built a lot of redundancy into the recording process. It supports directories on tape as well as the capability of booting the system from tape.

Cartridge-tape systems, though, were far more visible at COMDEX than videotape or reel-tape systems. Only recently have the recording density, footage and the number of tracks increased enough to make this backup technique competitive.

Data Electronics of San Diego, California, is one firm producing streaming-tape drives specifically for Winchester backup. Streaming tape means that the data is dumped to tape in a large block, a technique particularly suited to end-of-day backup and unsuited to most other storage purposes.

HP hypes its sales hustle

By Maggie Canon, IW Staff

LASVEGAS, NV—Hewlett-Packard is pursuing the lucrative personal-computer market with some new and more aggressive strategies. Speaking at the COMDEX trade show here, HP's Dan Terback, announced the formation of a new division for personal computers, which includes the HP series 83 and 85 computers as well as the new HP-125. The new division will be based in Corvallis, Oregon.

At the same time, Terback revealed that dealer discounts would be increased by 25%.

"Our goal in 1981 was \$100 million in sales; we just finished our fiscal year in excess of that goal," Terback said. The HP-125 broke new ground for HP this year. The personal-computer segment of HP grew by 250% in 1981, and "we expect at least a 50% growth in 1982."

The HP personal computer is aimed at the "analytical profes-

sional in science, engineering and business," according to Terback. HP has been very successful in selling to scientists and engineers, a fact the firm intends to capitalize on. But HP is now attempting to make itself appealing to the business professional also.

The new dealer program, with its increased discounts, reflects HP's determination to capture a bigger segment of the personal-computer market.

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Training is missing link in office-computer success

By Dorothy Kunkin Heller

Computer sales to small businesses are generally pitched at the purchaser, not the user. The owner's unilateral acquisition of equipment for his business can cause resistance and resentment from employees and result in failure to utilize the system effectively.

The solution, according to retailers, consultants and software manufacturers dealing with the problem, is training. "Training is the missing link to successfully introducing a computer into the office environment," says Tom Gibbons, president of Software Publishing Company.

"Equipment is really designed by scientists to sell to owners," emphasizes Betty Burr, director of training for the Headquarters Company, a consulting firm.

David Thornburg, Atari consultant and president of Innovision, agrees. "Purchasing a computer for the home is more likely to be a group decision, or at least the focal point of family discussion. The computer's purpose in the office is much simpler—to make money for the owner. The business owner is interested in results, not in the user. The emphasis isn't on human factors except in terms of output."

A typical case history concerns a small construction firm that purchased a business- and word-processing package. The firm's clerical staff went out of its way to work around the system. After six months, only the president (who had bought the computer) and a part-time programmer were using the system.

Finally, the software company that designed the word-processing package sent a programmer out to train the staff. The office workers had been apprehensive about their jobs, nervous about using expensive equipment they didn't understand, reluctant to experiment and frustrated by the amount of time it was taking to get things to work by trial and error. They also wanted attention! After several training sessions, the employees began to fully utilize the system.

Tom Condron, manager of Computer Plus, a retail outlet for Apple Computer products in Sunnyvale, California, analyzes the problem: "When computers are grafted onto organizations instead of being integrated, they are seldom used effectively. Introducing a computer isn't a trivial step. Computers have an enormous impact on the internal workings of an organization."

Guidelines for success

What guidelines can small businesses follow to ensure computer success stories? According to Burr, "The training process actually starts long before the purchase of equipment."

- the paper load on-line. Why are you using paper in the first place? Is it habit or is it relevant?
- involve the employees who will be affected by the computer in the process of selecting the equipment. "If they help choose it, it's less threatening." Users will ask lots of questions the owner may not think of. "At the Hanover Industrial Fair in West Germany, I've seen office workers actively question and shop for equipment for their employers," says Thornburg.

- Build procedures around the use of the computer. Who will use it, when and why? "Try to avoid making use of the computer as a status symbol."
- When you visit a vendor, go in with a checklist of what you need and a worksheet for evaluating products and services.
- Look for vendor training, support and documentation. "There are a lot of systems that offer similar capabilities. You can afford to choose on the basis of support, including support on a

continuing basis for new hires."

- Look for clear, readable documentation for both hardware and software, but don't confuse reference materials with training. "Good training manuals," according to Bill Carris, national sales training manager for Atari computers, "offer a low ratio of ink to paper, lots of illustrations, show the process step by step and provide lots of backup."

Company presidents may be uncomfortable about consulting their *se-*

continued on page 21

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More corporations endorse telecommuting for data processors

By Dorothy Kunkin Heller

Telecommunications will enable only 15% to 25% of today's office-based employees to work at home, experts predict. Flex-hour at-home work, supported by the latest microcomputer and communications technology, may be a significant trend for workers in the data-processing industry, however.

"What we're really talking about is returning production to the home, which is where it was before the Industrial Revolution," writes Alvin Toffler, author of *The Third Wave and Future Shock*. Toffler coined the

phrase "electronic cottage" for the combined home and work place of the future. Toffler's vision sees "telecommuting" as the solution to social and transportation problems, resulting in stronger communities and a healthier society.

Other students of telecommuting say that Toffler is too optimistic. Dr. Jack M. Nilles, who studies telecommunications and transportation at the University of Southern California, predicts that only 15% of employees will be working at home by 1990.

According to the 1975 census, 3.2% of the work force was employed at

home. One third were farmers; the remainder were in business for themselves.

Recent trends in tele-shopping, electronic banking and pilot projects for remote centers and at-home employment show that American industry is interested in experimenting with the possibilities of telecommuting. Control Data Corporation currently has 60 employees working on terminals at home, mostly programmers. Continental Illinois National Bank & Trust in Chicago recently hired a group of word processors to work at home.

A highly successful British software support firm, F International, now has a "sister" operation in the United States—Heights Information Technology. Both companies are based on a part-time, at-home work force of data-processing professionals.

Aetna Life & Casualty is studying Heights as a pilot project for Aetna employees working at home. North American Life Insurance Company and Manufacturers Hanover Trust are considering similar programs also.

FMC Corporation in Chicago now has nighttime on-call programmers to solve emergencies on terminals at home. "They can take care of problems in 45 minutes while they're still wearing pajamas," the company says.

A major reason for interest in telecommuting is that it enables people who couldn't work comfortably in the office to join the work force. The largest categories in this group are women with family obligations and handicapped workers.

Quality of life

Another group of actual or potential telecommuters, according to Leah Tracy of Heights Information Technology, is "people who are more concerned with the quality of their lives than 'getting to the top' in a corporation." This group of men and women, usually middle-class professionals, includes a high proportion of programmers and systems analysts.

Roberta Tasley, a researcher at New York University's Interactive Telecommunications Department, found "a surprising number of at-home workers for whom quality of life, rather than child care, was the prime goal." There were "many more men than I expected to find in this group," says Tasley who is writing a report, "The Changing Shape of Work."

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The "quality-of-life" workers wanted more autonomy, more control over the kind of work they did and more freedom to pursue personal interests. Some of these professionals employed child care for their families, even though they were working at home.

In her preliminary research, Tasley interviewed a pre-sample of mostly programmers and systems analysts about productivity. All of them said that they were "one to three times more productive working at home," and "would never consider returning to an office-based, salaried job."

International statistics that its part-time data processors put in "five concentrated hours a day" on the average and "produce a week's work in less time than full-time office workers."

Blue Cross/Blue Shield also found that keypunchers who worked at home on terminals processed forms less expensively than office-based employees.

Tasley and other commentators point out that there are still unresolved issues about working at home. Two problems are promotions and isolation. "Telecommuting is positive in that many women previously had to drop out of the work world entirely during child-rearing years," says Tasley.

The employer gets as much productivity as from full-time office workers, but doesn't pay a full-time salary.

"But it's a negative in terms of promotion. Most companies still take the attitude, 'out of sight, out of mind.' If you're not clearly visible at headquarters, you probably won't gain promotion. Men who are telecommuting have the same problem," Tasley adds.

According to Tasley, at-home professionals cite "stress" as a condition of both office life and at-home work. At-home workers must have more self-discipline, be able to structure their working environment and may have conflicts between their at-home work schedule and their families.

Isolation from office life

Professional and social isolation can also be a problem. Illinois Trust's at-home clerical employees felt isolated from office life. Workers at remote centers of Southern New England Phone Company felt deprived of visibility and contacts.

According to Judy McCullough of Working Women, an organization in Los Angeles for office workers, "concerns about at-home contract work should be taken as seriously as the advantages." Telecommuting may cause more problems than it solves for office workers.

"Clerical workers don't have decision-making powers about the kind of work they do. Work satisfaction is lower than for professionals because most clerical work is routine, and the pay is also much lower. Clerical workers at home may feel even more isolation and less job satisfaction. Because they're isolated, they may also lack any recourse for solving

problems or mediating grievances."

Women who work at home and can't afford child care or other help may also suffer more stress than in an office. "The home may become a 24-hour work place," McCullough points out. She also notes that part-time work introduces the whole problem of "piecework," where the computer is the supervisor and workers are evaluated solely by "keystroke."

Part-time work definitely benefits the employers, however. "The employer gets the best hours of the employee's day. Usually, he gets as much productivity as from full-time office workers, but doesn't pay a full-time salary or benefits." Clerical at-home

workers for Blue Cross/Blue Shield receive no fringe benefits and pay approximately \$2400 a year for a terminal and paper supplies, for example.

"I'm convinced that at-home work is a universal trend," says McCullough. "It's not for all jobs or for all people."

Tasley suggests that telecommuters should be seen as contractors rather than part-time workers. New policies are needed to make telecommuting really work, she says. These include changes in insurance and benefits, new promotion policies and training managers to deal with a remote work force. "Companies should recognize that at-home contractors are an important resource and work out a bene-

fits structure, equal pay and management and promotion procedures."

At-home work may be appropriate only for certain kinds of jobs and certain kinds of people. At-home workers must be highly motivated, disciplined and proud of their professional reputation, according to Mrs. Steve Shirley of F International.

"Telecommuting is an important option for people who find it compatible with their work style," says Tasley. "This includes many data-processing professionals. Since the computer industry needs all the talent it can get, working at home makes it possible for more people to join the data-processing work force." ■

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Training

continued from page 17

crearies or bookkeepers about purchasing a computer and only give "lip service" to participation. That may be a mistake," says Condron. "We would always prefer to have the people who are using the equipment participate in the decision. We want the customers to get the best system for their needs or not purchase at all. We have gone so far as to not sell to prospects who weren't willing to involve the user or participate in our training sessions."

"Training doesn't necessarily have to involve an instructor," says Burr,

"but it does have to involve a workbook, step-by-step procedures and building blocks that give a person practice, feedback and success in a logical sequence. Scientists tend to confuse traditional documentation with training. Traditional manuals aren't learning tools—they present material topic by topic instead of step by step."

Software Publishing manufacturers of the PFS Personal Filing System and PBS Personal Reporting System, believe that "manuals are a part of the product. The words 'bit' or 'byte' don't even appear in our manuals. They are written by people who are writers first and technicians second. We include

our writers in the product development. If they can't explain how to do something," says president Tom Gibbons, "there's probably something wrong with the product."

The goal of effective training is to make users successful with a minimum of time and effort. "The industry has already absorbed everyone who knows about computers," Carris points out. "We have to make it OK for first-time users not to know about computers, to make mistakes and feel comfortable about it."

Consider two more guidelines:

- Start users with what is familiar. The first step in introducing a word processor, for example,

could be a demo of how to produce a printed page. Then add simple editing commands as users build on previous experience. "If the typewriter is familiar, first teach the user how to use the computer as a typewriter and build on it."

- Adjust expectations. In their eagerness to sell, vendors tend to exaggerate the ease of use. "Output will actually slow down while users are going through a learning curve. A computer is like any other tool. You have to learn about it, figure out what you want it for and take the time to sit down and learn how to use it."

Computer Swap Meet goes on the road



Over 5000 visited the recent Swap Meet in San Jose, California.

Over the past few years, Computer Swap America has become known in the San Francisco Bay Area as a show that offers a wide range of used and new computers, disk drives, printers, books and other computer-related products.

Now John Craig, the show's ring-leader, has announced plans to take his exhibit on the road. He plans to offer qualified individuals or organizations the chance to run a Computer Swap America in their own state.

Craig's most recent Swap Meet attracted over 5000 computer seekers to San Jose last October. The prevailing high-technology flea-market fever was heightened by companies selling items ranging from home satellite-receiving systems to automobile computer systems and mobile phone hookups.

The next Swap Meet will take place at the Orange County Fairgrounds in Costa Mesa, California on February 6.

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Jonathan Rotenberg answers queries at a Boston Computer Society exhibit.

Boston Computer Society

College sophomore heads 3000-member club

By David Needle, IW Staff

Until Jonathan Rotenberg, 18, founded the Boston Computer Society four years ago, Boston was the only major city in the United States without any computer-users groups. The first meeting was attended by two people, the second by six. Today the BCS is the largest independent personal-computer association in the country. With over 3000 members, the BCS has shed its early appeal to hard-core microcomputer users and reflects a

greater cross-section of the general public, most of whom are more interested in learning how to use a computer than knowing what's inside it.

"There are other groups as old, or older, than ours, but they're still in the hobbyist phase," says Rotenberg.

The turning point came in 1978 when the BCS put on the Home/ Business Computer Show. The 7-hour show had 45 exhibits, seminars and workshops. Over 1000 people attended, and BCS membership jumped from 70 to 225 people. Since that time, membership has continued to grow at a rapid rate.

It's difficult to classify the BCS with any other computer organization or club. It's not strictly a users' group or club or a resource or educational center, yet it has elements of all these categories.

And it's not just a Boston-area phenomenon. Rotenberg thinks that within two years the BCS will be a national organization. That should coincide with Rotenberg's graduation from Brown University in Providence, Rhode Island. (He is currently a sophomore studying anthropology and Western civilization and is taking "no computer courses.")

"I like to think we're becoming the PBS (Public Broadcasting System) of the computer world," Rotenberg says. He feels that computer stores have a vested interest in selling something, even when they're only advising a customer. To counteract retailer commercialism, he sees the BCS as "an independent, objective source of information."

Some of that information appears in the *Boston Computer Update*, the soci-

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December 14, 1981

ety's bimonthly, color, glossy magazine that contains current news, commentary, advice and features on the computer industry. According to Rotenberg, many people from states other than Massachusetts join the society just to receive the *Update*.

Saturday hands-on clinics

The BCS offers many other services to local members, however. The BCS Resource Center is open daily, and there are hands-on clinics on different computer applications each Saturday.

The BCS Resource Center has a constant flow of volunteer help for the Saturday clinics.

Systems from all the major manufacturers are available or expected soon, according to Rotenberg.

"There's an interesting kind of learning curve that's developed from the clinics. People don't realize how fast they learn," said Rotenberg. The result is a constant flow of volunteer help for the Saturday clinics from people who, six months earlier, knew nothing about computers.

"The only problem is that some of the people learn quickly and then they want to 'talk shop' [computers] at the clinics. That can be frustrating for some of the new people. We're trying to eliminate the aura of elitism that surrounds a lot of the industry," explains Rotenberg.

Marjorie Elias, a researcher at Harvard University and a volunteer instructor at the Saturday clinics, is somewhat disheartened that the clinic hasn't attracted more women and often "turns into a men's club." But she adds that the women that do come are a lot more eager to help beginners than the men are.

The BCS was recently granted tax-free status as a nonprofit organization. This rank will enable it to receive grants and expand many of its programs that are intended to serve the public.

A series of "multimedia lunchtime seminars" are being planned, as well as an outreach program intended to bring computers to schools and the community at large.

The society currently represents eight users' groups and five special-interest groups that focus on computer applications. The latter group includes a business users' group, an educational resource exchange, a Pascal users' group, a robotics interest group and a Source/CompuServe users' group.

"We want to expand so that people will have a specific place to go for support," says Rotenberg.

BCS has also sponsored a number of special events, such as October's Personal Computer Forum at the Northeast Computer Show, which drew a standing-room-only crowd of over 1,000 people.

At that forum, panel participant Nigel Searle of Sinclair Research observed, "The consumer is still asking what a personal computer can do for him." The answer to his question

might best be found at the Boston Computer Society with its resource center, up-to-date library, specific users' and special-interest groups and popular special events designed to help and inform the public at large. ■

Rotenberg spends a quite moment at a micro in a computer room at BSC headquarters.



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Software-of-the-month clubs offer good deals, draw in members

By Deborah Wise, IW Staff

Buying computer software can be bewildering. The choice is enormous, the content often unknown and the price range confusing.

In a way it's like buying a book. Nowadays you can go to software stores, read software review publications and even join software clubs run on the same principle as the Book-of-the-Month Club.

Book clubs entice membership by offering free gifts, and one software club is using the same tactic—and it seems to be working.

If you are a charter member of the

American Software Club (ASC), you receive—with no obligation to make a future purchase—a free checkbook-balancing floppy diskette. Along with this comes the ASC's catalog—which in November listed 24 programs—and a bill for \$1.50 for postage and packing.

The people who returned the application form to join the ASC are under no obligation to buy any further products though they will receive the "Choice-of-the-Month" program automatically. If they decide to keep it, they will be billed; if they don't, they can return it at no cost.

Programs in the ASC's Software

Compendium sell at an average 22% discount below retail list price, according to ASC marketing director Lee Konowe.

ASC's introductory campaign brought in 2000 members in one month. The advertisement appeared in four trade magazines. "Even by my own standards, we have outdone ourselves," said Konowe, a psychologist who started the ASC in Millwood, New York, six months ago with Robin Carter, a former word-processing consultant.

The company plans to expand. Konowe is launching another direct-

mail campaign to 20,000 people as well as continuing to place ads in trade journals. He expects to open international offices in England and Australia soon.

This month the ASC catalog is listing 48 packages for a selection of microcomputers, including Apples, Ataris, CPM-compatible machines, Commodore PETs and Radio Shack TRS-80s, Konowe said.

The ASC indirectly helps consumers pick products they want by narrowing down their field of choice. "We have expert evaluators and we turn down a considerable amount," observed Konowe. Kids test the entertainment packages; certified public accountants, the business programs; and teachers, the educational offerings, he said.

The company buys the programs in bulk and, therefore, can pass on considerable savings to its members. "I don't think the industry has seen buying at such levels," said Konowe, who guessed ASC would turn over its present \$19,000 worth of inventory in six weeks.

Other software club

Besides programs, the ASC also offers hardware supplies. Konowe quoted diskettes from the ASC at \$2 that he said retailed for \$4.50.

The ASC Software Compendium catalog will become a legitimate journal within a few months and will contain reviews and feature articles, in addition to an ASC newsletter, Konowe said. As well, many companies have asked for advertising space.

Another similar venture, based in Watertown, Massachusetts, is also doing well. Barry Passen's Microcon Software-of-the-Month Club signed up 300 members in its first two weeks.

Passen offers between 75 and 100 products. After an initial purchase, a member is obligated to buy two additional packages within the next six months. Like Konowe, Passen also has an active staff of evaluators to test the software he offers. ■



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BB 002 TIME40	06/17 16:13
AA 007 ADIGCLK	05/19 08:05
AA 011 SET TIME	06/08 09:07
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December 14, 1981

Micros bring employment, dignity and hope to the handicapped

By Dorothy Kunkin Heller

Human courage combined with computer technology is enabling handicapped people to find data-processing jobs. Community projects and interested employers are developing programs to train and hire people with handicaps or special medical problems to work either in the office or at home, through "telecommuting."

"Severely handicapped people can be employed in the computer field in almost every capacity," says Richard Canning of the *EDP Analyzer*.

"Handicapped people are not so disadvantaged in such computer-oriented positions as they might be in sales positions or on a factory floor. We have heard of handicapped programmers, systems analysts, data-entry operators and data-center managers. The severely handicapped are one of the most over looked sources of data-processing employees."

Wells Fargo Bank, with 373 offices throughout the state of California, began hiring handicapped employees when members of its personnel department urged managers to consider handicapped applicants.

The bank has four severely handicapped employees in system development and 31 in data operations, with disabilities that include total blindness, mental retardation, deafness, visual impairments, aphasia, autism, orthopedic impairments, learning disabilities, emotional problems and cerebral palsy.

"We didn't have to create any special physical accommodations, other than obeying federal guidelines about wheelchair access," says John Crooks of the Wells Fargo operations department. "We did put in a teletype system that makes it possible for deaf employees to make and receive phone calls."

Wells Fargo also offers classes for employees in American sign language. To date, over 100 employees have taken the course.

At-home work for handicapped

Wells Fargo is not considering telecommuting as a serious option however. "All our handicapped employees work full-time on-site and are committed to working and living fully in society despite their handicaps," says Crooks.

"One of our programming specialists is a quadriplegic with speech difficulties. He not only works on-site full-time, but conducts classes and commutes on assignment to Los Angeles driving his own van."

Other organizations are exploring at-home work for handicapped programmers. Lift Inc., a nonprofit organization in Northbrook, Illinois, has trained about 30 programmers who work on terminals at home for companies such as Standard Oil Company of Indiana, the First National Bank of Chicago and Montgomery Ward. Some of the severely handicapped programmers operate the keyboard with sticks strapped to their hands.

A man who was partially paralyzed in a swimming accident has developed a mobile unit to give handicapped people computer experience in their own homes. Working with the

National Paraplegia Foundation and equipment loaned by Texas Instruments, Jack Kishpaugh created the Mobile Computer Skills Evaluation Unit. Handicapped individuals can use the unit to evaluate their interest, skills and capabilities and can take a 16-hour course to begin training as an operator, word processor or programmer at home.

Hardware modifications for the mobile unit were designed by a quadriplegic who supervised other disabled workers who could use their hands. Additional modifications include putting all written material into loose-

leaf binders to facilitate easy page turning with mouth sticks or orthopedic devices.

The BASIC software games and self-teaching programs used in the Mobile Unit are loaned by the National Paraplegia Foundation (NPF). The NPF notes that it has "sold" the idea to several Texan employers. "The employer saves on office space, parking and other employee facilities. The employee saves on the time and difficulties that may be involved in transporting himself to the work site," says Kishpaugh.

Kishpaugh began development of

the Mobile Unit for a contest sponsored by Johns Hopkins University and Tandy Corporation for personal-computer applications that aided people with handicaps. "With community resources and federal funding becoming more scarce, it is very important that we encourage and enable people to be as self-sufficient as possible," says Kishpaugh. "This applies particularly to the handicapped person who has abilities that have been overlooked. These abilities can be put to use through computers located in their homes, enabling them to be gainfully employed."

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Micro data-base-management systems

By Scott Mace, IW Staff

As data-base-management software for micros grows in power and complexity, more and more of that software has earned the right to be called a data base—even if it only simulates a true data base.

Some products, such as PFS Report by Software Publishing Corporation, do not even bill themselves as data-base managers, even though PFS and other, more elaborate, programs share the same method of storing and accessing information.

This method, the source of the sim-

ulation, is ISAM—the indexed sequential access method. ISAM stores records in sequential order but builds a separate index to guide retrieval. ISAM isn't as fast as the true random access that a data-base-management system running on a mainframe computer provides, but since micros do not have the RAM storage capability of mainframe computers, some compromise must be made.

At the recent Mini/Micro computer show in Anaheim, California, software consultant David Ferris declared that microcomputer data-base managers

were "utterly inadequate for serious data-processing-software development." Ferris said most data-base-management systems for micros were "little more than elementary ISAM file organizations, with no real understanding of such major issues for the software professional as reliability and multiuser concurrent access."

Of the products available for micros, only Micro Data Base Associates's MDBS is acceptable for professional work, Ferris continued.

According to Frank Colin, however,

"It all depends upon your point of

view." Colin is a technical support representative for Stoneware, a California company that produces DB Master, a data-base-management system for the Apple computer.

Colin described DB Master as "about as true a data-base manager as you can get for a micro."

"You can only fit so much on a 5 1/4-inch disk," admitted Stoneware's general manager, Lou Long.

With the addition of software that will run with a hard-disk drive, DB Master will become a multiuser system, Colin said.

While many micro owners have gradually moved from simple file-



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management systems to data bases, some users of large timesharing systems have acquired micros and micro data-base-management software for different reasons. One company that supplies both kinds of data-base-management products is Comshare, of Ann Arbor, Michigan.

Comshare's customers opt for a large or small solution, based on how big that data base they have to maintain is, according to Ron Jeffries, president of information systems at Comshare.

Roughly, those whose data bases fill 20,000 to 40,000 cells (each cell represents the intersection of a row and a column on a spreadsheet) can purchase micro data-base managers from Comshare, such as MPI's Quest. On the other hand, those whose data bases are likely to fill from 40,000 to more than a million cells can use the fully relational data-base service called Quest that Comshare offers.

Jeffries feels there are two basic reasons why micro data bases are limited. First, software developers of micro data-base managers "are not particularly sophisticated yet," according to Jeffries. "Most don't have 10 to 15 years' experience in the industry (unlike mainframe programmers), but are people right out of school or programming hackers."

The second drawback is the size of microcomputers themselves. Both speed and storage capacity are more limited, Jeffries said, so certain features that could run on a micro are left out in order to improve speed and storage a bit.

Many observers agree, however, that micro data-base managers can perform any task that their mainframe counterparts can perform—given enough time.

Colin said printing and sorting were the slowest operations micro-data-base managers perform. Access time on a micro can typically be 3/4 seconds, as opposed to half a second on a mainframe. "If a guy wants instant re-

sponse, he's going to spend more money for the data base," Colin said.

Waiting for data

Another time-consuming aspect of micro data-base managers is multiple entry of information. On a mainframe, when transactions take place during the day, the data-base program can automatically update various records. Micro data bases are not large enough to perform such automatic updating, though.

One of the reasons micros have appeared in place of, or in addition to, mainframes is the shorter waiting time for use of the computer. Colin cited the example of an oil company executive who was tired of calling his company's data-processing department, requesting a data-base-generated re-

port and receiving a stack of printouts hours later that might or might not have contained the information he wanted.

"We tend to get spoiled by data bases that do everything," Colin commented. Still, there are times when a microcomputer is more convenient, as well as less expensive.

"The main idea is to make the computer usable," Colin concluded.

The group vice-president of Comshare, Kevin Kalkhoven, said that micro data-base-management systems were "about six months behind" the development of financial-planning programs such as Target, produced by AMSI, a subsidiary of Comshare.

Kalkhoven added that the advent of 256K random-access memory would open up micros to many more database applications.

Comshare's acquisition of AMSI was partly a reaction to the competition micro data bases could pose for large timesharing companies, Kalkhoven explained.

"Our competitors still seem afraid of micros, as well they should be," Kalkhoven said.

In his speech in Anaheim, David Ferris predicted that the micro world would soon suffer from some of the same problems that mainframe-data-base developers are familiar with, namely long development times and

high costs. "Most of the micros destined for the business environment will end up spending a lot of time on traditional applications such as order entry, inventory maintenance, accounts receivable and so on... The facts are that as people attempt to build an integrated portfolio of programs around a central data base, life suddenly gets much, much harder, and this applies in exactly the same way whether you have a \$4 million 10361 mainframe or a \$1000 TRS-80."

Some micro software developers agree with this conclusion, but the development of micro data-base-management systems will continue. ■

The Source as a data base

By Scott Mace, IW Staff

Although The Source is not in itself a data base, users of this microcomputer information service can access various data bases sandwiched in between the other services provided The Source.

There are about 50 separate data bases within The Source, according to its manager of corporate communications, Mike Rawl. The data bases range from simple bibliographies to wine lists, cooking recipes and several different ways to access commodity prices.

"Virtually any area of interest can be programmed into the system," Rawl said. "The term data base is too limiting. We call ourselves an information utility."

Whatever it is called, The Source provides information in certain areas in much the same way that a relational data base does, by keyword searches. The Source can also produce an entire book (many bestsellers are on-line) from such a keyword search. The Source can also search several different data bases at once.

The growth of The Source's data bases has come from two directions: Home users have gradually discovered business applications, and business users have logged into home-information services.

News services such as the New York Times maintain many of the business data bases. Rawl said The Source had to create its data bases from ones that already existed as hard copy. "We can only deal with people whose data bases are in existence," Rawl said. "We have no gateway between the computer and someone's box of file cards."

Nonetheless, users of The Source have set up other data bases themselves. These data bases cover a plethora of subjects and are often quite sophisticated. Certain data bases are restricted by password codes, so that organizations can restrict data-base access to their own members.

Some of the information data bases that will soon be added to The Source are a legislative monitoring service, a commodity news service and a digest of 27 leading business publications. ■

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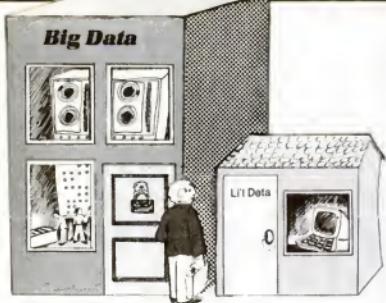
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Share or own: data-base options

By Paul Freiberger, *IW Staff*

If we are indeed at the advent of a new "information age," the means we choose to store and retrieve information will significantly shape our future. Two options in the area of data-base management are timesharing network systems and owning one's own micro or minicomputer system. Each method has intrinsic advantages and disadvantages.

Timesharing is the older of the two methods. It utilizes large computers that store information at a central location for use by subscribers. Software available from these networks can vary

from general data-base systems to custom software developed to suit a client's specifications.

Leasing a computer system to manage data can be a useful introduction to computerizing an office. "I realize it's probably more expensive in the long run," says Bill Welch, controller of Luce & Company, a meat wholesaler in San Francisco. Welch's firm recently opted for a timesharing system that offers customized software for such services as payroll, general ledger and accounts receivable.

Despite the cost, Welch explains, costs for timesharing are spread out over time like any rental agreement. "We're a small firm and we can't keep a data-processing department on hand," he says. "With this service, we have the advantage of having them do some programming for us."

But there are problems with timesharing. Communications are accomplished over a phone line, which slows down the data-transfer rate. Users of timesharing systems may become excessively dependent on suppliers for any program modifications.

On the other hand, the option of owning your own system has become more viable with the emergence of the microprocessor. There are a variety of data-base-management software packages available for many different microcomputers. Until very recently, however, many of these have been limited in the features they offer.

A true data-base system allows users to keep track of complex kinds of relationships that may exist between information while, at the same time, avoiding duplication of data.

Many software packages that are labeled data-base managers are, in fact, generalized file-management systems. They permit you to create a file with records of a certain kind, but they cannot track the complex interrelationships in the data.

Progress has been made in microcomputer software, though. For example, dBASE II, a C/M-based data-management program is a relational data base that also allows users to customize the program. Within the program is a programming language that allows users to program their own data base. Other microcomputer programs with similar sophistication will likely emerge in the near future, particularly as hard disks become more readily available.

A giant step—backwards

Large, maintained data bases such as Dow Jones or the New York Times will remain as network systems. It makes little sense for a home or business to try to duplicate the work of these large organizations.

The personal computer may soon combine with timesharing systems to help speed up the access time to a large system. Using a personal computer as a "dumb" terminal to access information from a larger computer, without taking advantage of the smaller CPU as well, is in some ways a giant step backwards.

We can expect software that will allow personal computers to handle the interface with the larger system. ■

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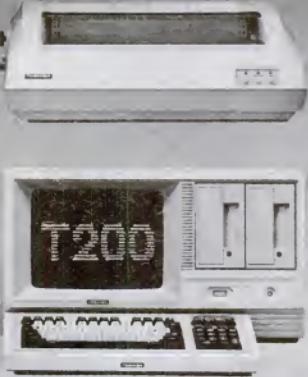
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Data bases: tools for the information revolution

By John Markoff, *IW Staff*

One of the unanswered questions of the "information revolution" is: how is the human mind going to be able to digest all of the facts that will deluge everyone in an information society?

Overnight, paralleling the development of the microprocessor, information has become a tangible commodity that can transform itself into many forms: counselor, tool, teacher, policeman, weapon.

This situation has created new pressures for instruments that manage and manipulate information. Now, large corporations and institutions routinely use complex data-base-management systems that can structure and track huge volumes of data, often making it instantaneously available to users spread out in different locations. The systemization of information gives only a glimpse of the true power of these instruments, however.

It is apparent that these systems have powers that extend far beyond being merely electronic filing cabinets. In the Robert Redford and Faye Dunaway movie *Three Days Of The Condor*, a computer operator deep within the bowels of the CIA uses a sophisticated data-base-management system to explore the labyrinthian electronic files of the agency and to track down the location of an assassin. (The system is evidently not infallible; at one point in the search, it links two suspects because their hats match.)

We hope that this is still the stuff that science fiction is made of, but it illustrates the point. As the processing power and available memory of personal computers increase, and as large data bases become accessible over communications networks, the potential of data-base-management systems will be available not just to giant corporations, but to ordinary mortals as well. What are some of the possibilities?

It has become common knowledge that the market for the personal computer is being driven largely by applications software. People routinely come into computer stores and say something like "I want to buy something to run VisiCalc on."

Right now, buyers are shopping for individual applications packages, word processors, electronic spread sheets and accounting packages. In the future, though, they are increasingly likely to want tools for tying discrete applications together, thus magnifying their power.

Data-base systems for micros

Today, few truly relational data-base managers are available to microcomputer users. Most are file managers that limit records to the single file that constitutes the data base. This kind of system allows users to keep their information well organized, but it actually does little else.

On larger systems—or, in some cases, on micros (at a high cost)—relational data-base managers do not explicitly define data relationships. Instead, a powerful data-manipulation language helps create temporary re-

cords referred to as "tuples" allowing users to recombine their data in many ways.

When truly relational data bases are able to fit on personal computers, a whole range of innovative applications will emerge. One clear possibility is to combine data-base-management software with editing tools for writers and programmers. A writer who should easily combine notes and outlines with the body of his text would have a perfect writing tool. Combining these capabilities with multiple-screen-display capabilities would re-

volutionize the art of writing.

Data-base software may also be one of the keys to increasing programmer productivity and reducing the cost of software.

A community data base

Possibly more exciting are innovative uses for data-base-management systems like the one the Community Memory Project of Berkeley, California, is planning. Community Memory, a small group of programmers, engineers, journalists and grass-roots political organizers, has designed a fully

relational data base, which it is selling through its marketing arm, Pacific Software.

Named Sequitur, this data base is designed as the foundation of an interactive, decentralized communications network. It will be the heart of a public-access information system that Community Memory intends to demonstrate in the San Francisco Bay Area. Such a system would incorporate terminals placed in public locations that anyone could use to take advantage of the potential of the information revolution.

ROW 1 (Net Sales) -->					MODE=NORMAL	ORDER=R/O	ROW=1-50	COL=1-20	
ENTER COMMAND:					First	Second	Third	Fourth	50 WATS
ROW	Quarter	Quarter	Quarter	Quarter	Total	41 ADD			
1	Net Sales	1,000.0	1,100.0	1,210.0	1,331.0	4,441.0	42 SUBTRACT		
2	Cost of Good	450.0	489.5	523.4	579.0	2,050.9	44 DIVIDE		
3	Gen & Admin	200.0	220.0	242.0	285.2	928.2	45 NEGATE		
4	R&D	300.0	350.0	390.0	450.0	1,490.0	46 INVERSE		
5	Total Costs	950.0	1,050.5	1,174.4	1,386.2	4,474.9	47 ABS		
6	Gross Profit	50.0	40.5	35.6	35.8	161.9	48 ROUND		
7	% Profit	5.0	3.7	2.9	2.7	3.5	49 CUMULATE		
8		0.0	0.0	0.0	0.0	0.0	50 DECOMPILE		
9		0.0	0.0	0.0	0.0	0.0	51 ADD R		
10	S.C.O.G.S.	45.0	44.5	44.0	43.5	0.0	52 SUB R		
11		0.0	0.0	0.0	0.0	0.0	53 MULT R		
12		0.0	0.0	0.0	0.0	0.0	54 DIV R		
13		0.0	0.0	0.0	0.0	0.0	55 SUM		
14		0.0	0.0	0.0	0.0	0.0	56 GET		
15		0.0	0.0	0.0	0.0	0.0	57 ZERO		
16		0.0	0.0	0.0	0.0	0.0	58 CLEAR		
17		0.0	0.0	0.0	0.0	0.0	59		

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InfoViews

Editorial

Pros & cons of mail ordering

The role of mail-order sales in the microcomputer arena has changed during the first decade of the industry. At first, mail ordering was the only way to purchase a micro, but the growth of computer retail outlets, office-product centers and other distributors has vastly overtaken the pivotal role that mail order once held.

Recently Apple Computer demanded that its dealers "not engage in mail-order sales of Apple products." Apple said the action will help the company "shoulder the responsibility for supporting and educating consumers in the use and application of personal computers."

We applaud those sentiments. Certainly all manufacturers and dealers should feel that same responsibility to their customers. And in most cases the computer retailer, working with the manufacturers, can provide service more quickly and more reliably than a mail-order house.

The inexperienced buyer can benefit from seeing and trying out a system in a computer store, even if only for a few brief minutes. If nothing else, the first-time buyer can be reassured to see a system up and running and to see that other people are coming in to buy. The consumer can also take confidence in knowing he has a place to return to if something goes wrong with the system later.

It's unfortunate that hard feelings between some stores and mail-order dealers exist. Many retailers have told us stories about people who come into their stores and demand a better deal on a system because they saw it priced for less in a mail-order advertisement. Under such circumstances, we can appreciate a retailer's bitter feelings.

On the other hand, we think mail order can be a valuable option for consumers, and computer purchase through mail ordering should not be abandoned. Buying from a computer store isn't the best choice for everyone. For example, it's a lot more practical for some people to shop by mail rather than commute to the nearest retailer, who might be many miles away. Even with department stores getting into the act, how many in-store computer sections are there in cities with less than 100,000 people?

Experienced buyers stand to save a lot of money purchasing through mail. As one mail-order dealer pointed out, you can save as much as \$1000 on a \$5000 to \$8000 system bought mail order rather than from a computer store. (He can offer lower prices because his overhead is less than a retailer's.)

Does the computer store provide \$1000 worth of service and support? Hopefully not, if it's selling reliable systems.

In most cases the mail-order buyer has a manufacturer's warranty to fall back on if he can afford to wait for the service and/or replacement parts. Furthermore, most reputable mail-order dealers often provide adequate phone support.

Mail order isn't for everyone, but many people feel it offers a broader range of products and knowledge than they can find in most computer stores. And some people feel threatened by sales pressure that is often present in stores. They would rather talk on the phone—even pay a consultant—and ultimately buy through the mail instead of venturing into a high-powered retail environment.

Mail order should be available for the buyer who knows what he wants. Computer stores are valid shopping territories for inexperienced beginning microcomputerists, but mail order should remain a consumer option as long as reliable products exist.—DN, DW

Letters to the Editor

Mystery addressed

I need your assistance to help me unravel the greatest mystery since the truth about the Masonic Rites.

What is the mailing address for The Source?

I have just spent the last two days going back through two years' worth of six different magazines and as many *InfoWorlds* as I have on hand to try and find it. It is absolutely amazing just how much I have found out about them, just about everything except how to write them.

As you have recently run some stories about them, I am hoping that their address may be on your files somewhere.

I am delighted that you are a weekly, as *InfoWorld* is one helluva good finger on the pulse that keeps me informed as it happens. The only negative aspect is the impact on my checkbook, but that's my problem.

Brian D. Strong
Wellington, New Zealand

You may write to *The Source*, c/o Source Telecomputing Corporation, 1616 Anderson Road, McLean, VA 22102.

VDTs good for you?

Your October 26, 1981, special-section story, "VDTs Can Cause Stress and Other Health Hazards in the Office," cannot seem to decide whether video-display terminals do or do not pose a radiation threat to users. We maintain that there is no evidence that such a threat exists.

In recent testimony before Rep. Albert Gore's House Subcommittee on Investigations and Oversight, we cited substantial evidence that there is less threat from VDT radiation than from radiation levels always present in the natural environment.

In the most severe fault tests that IBM could artificially impose, a typical unit emitted only 3 milliwatts of radiation per hour. This compares to a U.S. standard of 500 milliwatts per hour, which is accepted as a safe level. Independent studies by the Food and Drug Administration and the National Institute of Occupational Safety and Health have verified the safety of the VDT from a radiation standpoint. Moreover, studies by the Environmental Protection Agency and the Armed Forces Radiobiology Research Institute essentially concur with industry and government findings.

Even spokesmen for the American Newspaper Guild conceded during House hearings that there was no evidence of radiation harm from VDTs. The Guild persists, however, saying "Damn the facts. Let's look and look until we find evidence of a hazard, and if we don't find it, then let's look some more."

Stories like yours, though well intentioned, merely give fuel to those who, for a variety of reasons, scoff at the



bromide. "If it ain't broke, don't fix it."

For instance, you correctly cite some of the potential (though largely theoretical and unsubstantiated) stress problems associated with VDT use. Then your reporters proceed to delve into the radiation issue, first presenting it as a suspicion and allegation, but later accepting it as a fact, i.e., "Radiation is not the only threat the VDT poses."

The Computer and Business Equipment Manufacturers Association (CBEMA) has spent much time and money in an effort to explore the allegations that VDTs pose a radiation health hazard. So have many of our member companies.

It is in our interest as an industry to prove once and for all—to ourselves and to the public—that VDTs are safe. We believe that to be the case but will be more than happy to share our findings with the editors of *InfoWorld*.

Jeffrey T. Wood
Director of Communications
CBEMA
Washington, DC

Company pursues software info

I have just subscribed to *InfoWorld* and received my first copy. My responsibilities as a financial controller and now DP manager don't leave much time for reading, but I scanned the November 2 issue and found four ads or announcements in "InfoNews/Software" which were of serious interest to me. Letters to those vendors are going out today. That's more activity than any two issues of *Byte* or *Interface Age* have generated here.

Thought you'd like to know.

Adrian S. Wheeler, Controller
Technoserve
Norwalk, CT

Good enough for 'average' Americans

I would like to comment on your review of my book in the November 9 issue. While *The Computers Are Coming* is, as you say, a "gee whiz" book, and as I say, not meant for anyone in computing, it does hit its mark with Mr. or Mrs. Average American, its intended audience.

Every reviewer is entitled to his or her opinion, but it would have been prudent for you to keep in mind exactly who the book is written for and how that type of person reacts to the printed word. Perhaps the book shouldn't have been reviewed in *InfoWorld* if it could not have been seen in this light.

The average American off the street responds to the language, simplicity and style of this writing, I know. It's my fourth book. My first sold over 250,000 copies. So while I may not be [sic] the most literate when it comes to writing about computers, the audience I write for loves it. And that's not hype—in three weeks I've sold over 400 copies of this book from one mailing to stores. No big publisher, just one man trying to further the acceptance of computing in this country.

One suggestion for future reviews: make sure you know who the book is intended for and why it was written that way. Then you can either choose to review it or not. But please don't take a book which people not in your sphere of education or computer involvement will like and treat it the way you did.

If you can fault something I've written, fine. But opinions are just that, and while half the people might agree with you and not buy this book, there are the other half that might get something useful out of it. And when you think about it, we're all trying to do the same thing: raise computer consciousness in this country. Let's not fight each other!

Irvin Brechner
Irvin Brechner Enterprises
Livingston, NJ

Decries Microsoft manual sale policy

I have recently tried to buy a copy of the users' manual for Microsoft's FORTRAN and been amazed to discover that dealers are unable to sell Microsoft's manuals unless I buy the actual software.

This has to be one of the most idiotic and anticonsumerist policies that we have seen in the micro industry for a long time (and that's saying something!). As somebody who advises software consumers, I always suggest that purchasers should evaluate software as far as they can before they actually buy it. The biggest software rip-off is probably that there are vast quantities of software that people have legitimately bought lying around unused.

One of the essential evaluation steps is usually to buy a copy of the manual beforehand to see that the software is likely to be suitable. With Microsoft's policy, this is impossible, and I should have to advise clients that they should direct their trade to suppliers who allow them to make some kind of evaluation beforehand.

In my own particular case, I have been given a particular FORTRAN program from a university in Cologne (Germany), and want to adapt it for use

on my CP/M system. I do not need a FORTRAN compiler myself and would translate the program into BASIC rather than buy a FORTRAN compiler. However, a friend has offered to compile the program for me on his system and let me have the compiled results to run on mine. I need a manual in order to make adaptations to the source code so that it will compile properly.

This seems to me a perfectly legitimate thing to want to do.

The obvious result of this restrictive and monopolistic practice is that people are going to photocopy manuals and feel righteously justified in breaching Microsoft's copyright. Consumers develop a sense of grievance, which can only encourage them to rip off software and documentation.

Ian Litterick
London, England

Amateur scientists use micros too

I have enjoyed *InfoWorld* for a year and a half, and I appreciated your November 9, 1981, issue on Microcomputers in Science. However, I was disappointed that you did not offer more articles in support of your thesis of growth in applications. In particular, you omitted an interest of mine. There was only one sentence, about a developing generation of scientists, that suggested the increasing importance of the amateur scientist, now that inexpensive computer instrumentation and calculation is available.

For example, a coworker of mine (who has since moved to Arizona) reported in *Sky and Telescope* (January 1981), on his microcomputer-controlled observatory with which he measures and analyzes variable stars. Not only is his micro implementation fascinating, but he has the capability of making serious contributions to the body of astronomical knowledge.

Thanks for your excellent newspaper. Of the dozen computer publications that are regularly pushed through my mail slot, yours is the only one I sit down to read immediately.

Bill Herbert
Greenbelt, MD

VisiFile creation

In the November 2, 1981, issue of *InfoWorld*, you printed an item regarding Personal Software and its acquisition of software products.

In the article you stated that VisiFile was "created by in-house software developers."

In fact, VisiFile was written (as was its predecessor, The CCA Data Management System) by my company, Creative Computer Applications.

With the exception of a distribution agreement, CCA is not affiliated in any way with PSI.

Helmar B. Herman, President
Creative Computer Applications
Nashua, NH

Viewpoint

Don't forget the common man

By John Markoff, IW Staff

Online '81, held in Dallas last month, was a tour de force for the youthful, electronic-information industry.

The range of powerful data bases on display at the conference was truly stunning. From the technical wizardry of Chemical Abstracts's ability to search through the molecular structures of millions of compounds, to the sheer power of Mead Data's NEXIS, which includes the text of the entire Encyclopedia Britannica on line, electronic-information resources have begun to live up to the promise of the so-called information revolution.

Yet, the way in which the on-line industry has succeeded is cause for concern. "Knowledge for whom?" was once a question asked of scientists and scholars by activists during the '60s. They were concerned that knowledge workers were exclusively serving the powers-that-be. It's now fair to ask the same question of the burgeoning information utilities.

In the words of one speaker at a user's group meeting at the Online '81 conference, "As electronic-information systems have matured, they have been transformed from public systems with free access to private systems offering expensive information."

In practice this means that today electronic information is the province of large corporations and institutions. Many of the "information specialists" who attended Online '81 are employed by Fortune 500 corporations.

Isn't this inevitable? Certainly the cost of laboriously building data bases, writing sophisticated software, maintaining large mainframes to allow many users to simultaneously access information, and even creating a new class of on-line information workers who refer to themselves as "searchers," is bound to raise the cost of information.

Those who don't have the backing of a large corporate budget are often shocked to learn that accessing a particular data base may easily cost \$100 an hour or more. True—as defenders of the high cost of electronic information will tell you—a given information search may only take a fraction of an hour, meaning that the actual cost of information is lower than it first appears. The inescapable fact is that information has become a commodity with a vengeance, however.

This may appear to be an ideal state of affairs to supporters of a free-market economy; however, there is no denying that information is an odd commodity that doesn't fit comfortably into traditional molds. What other commodities can be given to two parties and still allow each to equally retain the full value of the original?

A more ominous problem is the impending centralization and control of information by large corporations as a consequence of the advent of new information technology. In the past, the public library has been one of society's most treasured institutions. It is a truly democratic setting that has provided access to knowledge, virtually as a basic right, for everyone. Today, information is increasingly stored in the form of magnetic impressions within the bowels of a computer. The overworked cliché that "knowledge is power" takes on a new meaning in light of the quantum increase of available information and the degree to which the world is rapidly being divided into "information haves" and "information have nots."

What will happen if information is controlled by a small technology? The power of electronic information lies both in the speed with which it can be obtained and in the ease with which specific information can be located or patterns of information discerned. It is easy to speculate on how such powers might be abused by government agencies; but the underlying question is: Will information technologies create vast new chasms between different groups in society?

The answer to the question "Knowledge for whom?" is obvious. Provisions must be made to make certain that the public library retains its vitality in the coming era of electronic information. Whether this is done by subsidizing access to data bases or by fundamentally rethinking the cost of information, the trend toward an information elite must be reversed.

It is worthwhile to remember that neither information nor knowledge is a substitute for wisdom.



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InfoViews

According to Garetz / Mark Garetz

Ads, Osbornes and chip wars

I was thumbing through a recent computer magazine reading the advertisement recently. (That's about all I read in them these days—*InfoWorld* is just about the only computer periodical in which I find the articles more interesting than the ads.)

I came across an ad for a mail-order computer outfit that had just about every computer on the market listed. There was one curious entry—The Osborne 1 [sic]. I don't know if this was an

unintentional typo on the advertiser's part or whether it was intended as some kind of editorial comment on the machine.

It seems that I get at least one query a day about how the Osborne is doing. I really don't know, and I'm hearing conflicting reports from the dealers. One dealer has supposedly sold over 200 units and is very happy with the machine's performance. He claims an insignificant DOA (dead-on-arrival)

rate and extremely good customer acceptance of the Osborne 1.

On the other hand, another dealer supposedly took delivery of 16 units, of which 8 were DOA and most of the remaining 8 had problems reading disks. He also claimed that customers were unhappy with the Osborne's performance—they expected more.

I heard reports of a third dealer who wouldn't even open the shipping container and inspect the unit to see how well it worked unless the customer paid him an additional \$25. At first that upset me; then I realized that new-car dealers do the same thing (the ubiquitous dealer-prep charge). In both cases

the margins for the dealer are small.

And once and for all I'm tired of hearing that the small screen didn't hurt IBM's or HP's machine sales. IBM and HP only tried to display 32 characters on a line compared to the Osborne's 54.

Back to the ads

We were on the subject of magazine ads a while ago. I think I am going to scream if I see one more ad that lists the price of an item as \$CALL. That really irritates me. I also dislike the phrase, "Price too low to advertise!" Says who? When did you ever see Sears pull that one in an ad? I would think that if you had lower prices, you wouldn't be afraid to print them.

Back to \$CALL. I have a good mind to send these dealers an order for a complete computer system with a check enclosed for the amount of \$CALL. Then they could \$CALL me to find out how much the check is worth. Does \$CALL bug you too? If it does, \$CALL

Now just let someone pick a mini versus micro fight with me over beer again!

these dealers \$COLLECT to find out their price.

I have heard a rumor (it may be announced officially by the time this appears) that Epson is about ready to release its own computer system. Word is that it's Z80-based with 64K of RAM, integral CRT and keyboard, two double-sided double-density floppies and CP/M operating system. The price tag is rumored to be in the \$2000 range. Adam Osborne may get some real competition yet.

Epson certainly has a track record of being able to provide a quality unit at an extremely low price. I'm thinking of the MX-80 printer, which is truly a remarkable piece of machinery. I have not heard any complaints from anyone about the MX-80, except that it is a little on the slow side.

Another product that I have heard no complaints about, and have heard nothing but high praise for, is the dBbase II software from Ashton-Tate. This product is a sophisticated and fast relational data-base-management system that is finding lots of uses in small businesses everywhere.

Ashton-Tate's free demo offer is also a winner. You get two diskettes; one is sealed and contains the actual dBbase II program, and the other is the demonstration diskette. The demo diskette contains a fully functional clone of the program, but it allows only a limited number of records. It lets you play with the program, and if you don't like it, you can return the unopened diskette for a full refund. I'll bet they haven't gotten many of them back.

Speaking of "no complaints" software, IBM has released version 2.0 of its popular Spelling package. It boasts a 1.5-times increase in throughput (how could it get any faster?) and at the same time offers the same 20,000-word dictionary but compressed into a third the space of the

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original.

Digital Research has released MP/M 2.0 and MP/M-86 multiuser operating systems. MP/M 2.0 reportedly cleans up many of the problems in the earlier MP/M, which should cause wide acceptance. MP/M-86 has even more features and enhancements. Digital Research released its XLT-86 8086-to-8086 source-code converter program. It reportedly does a sophisticated flow analysis of the program being converted, which should make for faster code.

One interesting thing is that two versions of the program were announced; one runs under CP/M-80, and the other runs on a VAX. (For those of you who don't know, a VAX is a very fast, very expensive multiuser minicomputer made by DEC. The interesting thing is the price differential. The CP/M version costs a mere \$150, but the VAX version is \$8000!)

You could buy a complete 8084/86-based S-100 development system with a nice terminal and disk for well under \$8000! I'll let the facts stand for themselves, but remember this when someone argues minis versus micros.

Mini vs. micro fights

Speaking of minis versus micros, DEC has announced its entry into the personal-computer fray. The firm now offers a Z80-based add-on for the VT-100 terminal, and the ad for the new micro clearly claims that CP/M is the established leader in new software development. Notice that this ad does not differentiate between mini and micro software.

Software Review Board

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Boy, I wish I'd had this as ammunition a few years ago when the biggest argument in favor of minis was the wealth of software out there. Well, now the largest maker of minicomputers is essentially admitting defeat. Now just let someone pick a mini versus micro fight with me over beer again!

The 8086 and 8088 are winning more and more design-ins every day. Plus, there is a lot of software support for these chips. And the IAPX 286 looks like a winner for the future.

The 68000 remains the dream machine on paper, but I have heard many

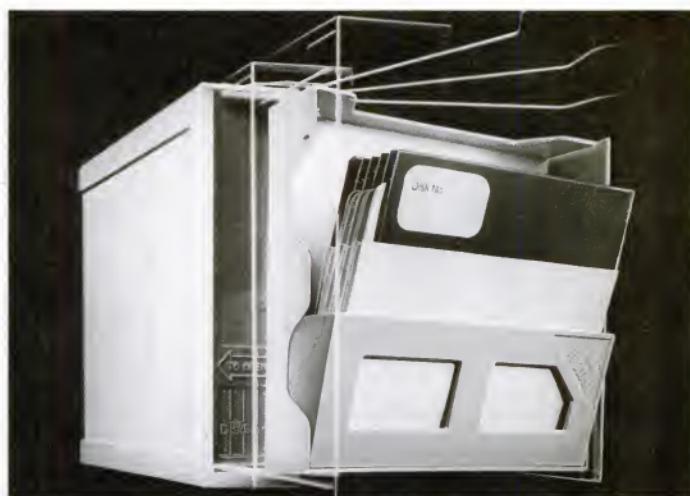
reports that its performance when given real-world tasks is underwhelming. A friend made some benchmark comparisons of the 68000 versus the 8086 in a multiuser environment and found that the 8086 did just as well, if not better, than the 68000. I was surprised, given all the glowing comments I've heard about the 68k.

Another story I heard involved a medical-instrument company that actually built the same instrument with an 8086, a 68000 and a Z8000. The 8086 won hands down, which surprised the company. The firm fully expected

the 68000 to win. Not only that, but the 8086 machine was running months before the other two. (The Z8000 placed a sorry third, by the way.)

Here's one last little tidbit, and then I'm off to COMDEX. According to Tim Williams, the author of the Oasis operating system, preliminary benchmarks show Oasis-16 running on a 5-MHz 8088 to be more than two times faster than the 8-bit Oasis running on a 6-MHz Z80.

That's it for this month, watch for my report on COMDEX in next month's column. See you then. ■



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InfoWorld Software Review

Auto Scribe II from Zenith Data Systems

By Bill Dewey

Word-processing packages combine the functions of text editors and formatters. Zenith Data Systems' AutoScribe II for the Heath/Zenith H89/Z89 microcomputer has been designed with this goal in mind.

Features

Two menus let you perform all the major functions of AutoScribe II. The starting menu lets you enter the cre-

ate, revise and view-document modes. The disk procedures menu lets you delete or copy documents, display or print the index and modify the default-spacing and page-length format parameters.

You can use any of the text-editing functions when creating, revising or viewing documents. Most of the editing functions are standard; however, several deserve special mention.

The program gives you four search

options, several ways to delete and the ability to copy other documents in the system into the document you're working on. The search modes allow you to search for a string, search and replace a single occurrence of a string and search and automatically (or optionally) replace all occurrences of a string.

A quick-search function automatically looks for text enclosed in square brackets, [], marks the text for deletion

and then enters the insert mode to let

you insert new text. You can use the block-copy and block-move facilities to place standard text into defined areas.

The various delete options let you delete single characters, words, lines and text to the end of the page. Each pending deletion is highlighted in reverse video until you execute the command.

AutoScribe II's formatting controls

InfoWorld

Software Report Card

AutoScribe II, Version 5.0

	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

System Requirements

- Heath/Zenith H89/Z89 computer
- Modified HDOS 1.6 (supplied with program)
- 48K RAM
- One 5 1/4-inch drive

Price: \$195

Zenith Data Systems

1000 Milwaukee Avenue
Glenview, IL 60025

let you specify horizontal and vertical spacing and left and right margins. You can also call for left or right justification or centering of text anywhere in a document. You preset default settings for these format controls using the Disk Procedures menu, but you can override them anywhere in the text.

The program provides automatic page numbering and gives you the option to place the numbers at any column and on any line. (The line containing the page number must, however, be outside the range defined in the default settings.)

The package does not do automatic page headings, though. You can simulate page headings, or footings, by using the Block Copy option. You can define any area of text as a block. Then you can insert the block anywhere in the text with a single keystroke, G for get. The original text will be left as is.

The Block Move command is different only in that it moves the text out of the old and into the new location.

A training diskette comes with the system. Used with the written documentation, the training diskette takes the first-time user step by step through the standard functions of

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InfoWorld Software Review

Castle Wolfenstein for Apple II from Muse Software

By Scott Mace, IW Staff

This game is not for the squeamish. Castle Wolfenstein, written by Silas Warner and distributed by Muse Software, is a nightmareish symphony of clicking jackboots, German shouts, gunshots, pools of blood and exploding grenades. It's also nightmarishly good fun.

Features

One objective of the game is to escape from a Nazi-held medieval castle.

You are an Allied soldier captured during World War II, and a dying comrade has just handed you a stolen Mauser pistol with ten bullets. Ahead of you lies a dizzying maze of rooms, each filled with Nazi guards and SS storm troopers. Getting out alive turns out to be quite a trick.

Your other task is to find Nazi war plans hidden, as all items are, in plain-looking lockers throughout the castle. The lockers can only be opened through a time-consuming process.

I should point out here that this is not just another adventure game. Many details—the soldiers, walls, chests, guns and you—are portrayed graphically. Other information, such as the contents of lockers, error messages and your supply inventory, is described in a single line of text at the bottom of the screen.

Movement of your armed soldier is controlled either by keyboard, paddle or joystick. In addition to moving your soldier in eight different ways, you can

aim his gun in eight directions. You don't see bullets fly, but you can tell when they hit their target—the enemy soldier lets out a cry and collapses into a stagnant pool of remains.

Along the way, you must shoot many such guards in order to reach other rooms or treasure, so bring a strong stomach or a good, warped sense of humor.

Only one room at a time is visible. Since you are looking down into the room's floor plan, you can see in all di-

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InfoWorld Software Report Card

Castle Wolfenstein

	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

System Requirements

- Apple II
- DOS 3.2 or 3.3 with Applesoft in ROM
- 48K RAM
- One disk drive

Price: \$29.95

Muse Software
330 North Charles Street
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rections, and you are able to move or point your gun vertically, horizontally or diagonally.

When you move from one room to the next, the room is momentarily blank while the next room is loaded into the Apple from the disk. Eventually you reach a room with a stairway that leads to another floor with various rooms.

After a seemingly infinite number of rooms, a passage leads you outside, where the message "You've escaped!" appears, and the previously black background turns into blue sky. Then Castle Wolfenstein may promote you in rank (starting with private) and raise the game's difficulty level.

Along the way, you encounter lockers with various contents that can either help you, hinder you or have no effect. You also encounter doors that must be unlocked or broken in order for you to pass and SS storm troopers who wear bulletproof vests and must be blown up with a grenade. If you don't blow them up, they might hunt you from room to room until they capture you.

One other thing—when you get tired of one castle, you can generate

many more different castles.

Performance

I found Castle Wolfenstein generally fast enough and challenging enough to capture my lasting attention. Especially at the higher levels, where SS guards multiply and guards seem to leap at you, the game calls for lightning-swift reflexes. I can't say if it becomes easier with a paddle or joystick, but with a keyboard, learning how to pivot the gun and fire before being captured is a trick. Ask the others around *InfoWorld* who tried to escape and failed.

The playing time of the game is lengthened by the long introduction (90 seconds) needed to load the disk. During that time you reread the same introductory speech, and after playing 20 times, you are sick of it. The other time-eater, that I feel is unnecessary, is the long period needed to open lockers, during which time a message at the bottom of the screen announces, "It will open in [230] seconds" for instance. These long delays are the one real flaw in the program; they may have been intended to heighten suspense, but instead they take away from the game's excitement. You could take up needpoint and finish a substantial book while playing a game and waiting for games to start and lockers to open.

I wonder how entertaining this game is for children. I found the graphic quality and my own tendency to unnecessarily shoot guards rather loathsome.

Ease of use

The program boots easily, and options to generate new games or castles are presented clearly at the start of a game. Ironically, the escape key on the Apple merely saves your position for resumed play later.

The enclosed documentation provides a quick reference guide to all keys used during your escape attempts.

Any time you push the return key, your current inventory of supplies is displayed, telling you if you've reached your maximum supply of bullets or grenades, and whether or not you must search and kill again.

Error handling

The easiest error you can make is to walk into something (a wall, for instance). The screen goes kablooey for a second and your gun, if brandished, disappears until you summon it again. If you try to open a door and have no key or the inappropriate key, you are admonished of your miscalculation at the bottom of the screen. (The keys are not marked so if yours don't work, the only solution is to steal some off another guard.) Try to use the contents of a closed locker and Castle Wolfenstein tells you the locker is still shut.

Occasionally, when I pushed the space bar accidentally and I was nowhere near a captured guard or treasure chest, I received spurious messages telling me I had supplies before me, when, in fact, the screen was blank in that area. This problem was not frequent and did not detract from the game.

I played Castle Wolfenstein on both

the Apple II and the Apple III using the Apple II emulation mode disk and found subtle differences between the two machines. For example, continuously holding down the space bar of the Apple III causes lockers to open twice as fast, but the same action on the II doesn't work. Instead you must release and press the space bar repeatedly to achieve the same effect. Both of these actions, I imagine, are unforeseen—if welcome—bugs.

While I'm talking about little playing advantages—and there are many you will discover—halfway through the review, someone disconnected the Apple III's sound, and for some reason, I found it easier to slip through rooms

undetected. But it isn't as much fun to play the game without the sound effects.

A total power failure in the midst of a game will cause you to lose that game, but your rank will not be diminished. Your rank, however, can drop if you lose enough games—or manage to blow yourself up!

Documentation

The eight-page booklet with Castle Wolfenstein tells enough, but not too much, to get you started. A reproduction of the keyboard with arrows pointing to game control keys is handy. Especially enjoyable were the translations of German phrases heard

during the game.

A map of the particular castle you are working on is not provided, of course, and you may want to keep one handy in case you need more supplies. Once you generate a new castle, however, you must generate a new map as well.

Summary

Castle Wolfenstein fills the bill as an action-packed thriller that ranks with some of the other popular Apple games. Since no arcade version of the game exists, Muse appears to have come up with a unique treasure for Apple game enthusiasts. If you live to tell about it! ■

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InfoWorld Software Review

DISSAX, a disassembler program from CEXEC, Inc.

By John Ford

A disassembler is precisely the opposite of an assembler. It is a program that interprets machine language and converts it to assembly language whenever possible. For those who are familiar with CP/M and its standard complement of utilities, the L command in DDT is a simple example of a disassembler.

DISSAX is a disassembler from CEXEC that requires a minimal 16K CP/M operating environment.

Features

DISSAX disassembles 8080 or Z80 executable object files (.COM files). The two main options are:

- Option A generates a source code file (ASM) in which all identifiable subroutine calls, jump locations and data references have assigned labels. This feature is most important because it conveniently lets you relocate code for which the original

source file is unavailable.

- Option R provides cross referencing for all labels. These references are printed as comments in the body of the source code rather than at the end of the listing as is more commonly found.

DISSAX has five other options of lesser importance. The output source file produced by DISSAX contains standard Zilog Mostek Z80 mnemonics.

Performance

DISSAX generally does its job well. Most purchasers will find the A option (which produces a reference label) to be useful and convenient. DISSAX is written in Z80 code, thus excluding CP/M users with 8080 systems.

Option P generates an output print file, similar to a PRN (commented output) file from CP/M's assembler. DISSAX's version is enormous by comparison, however. For example, a

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rating reports, generating other data files or online updating of input files that already exist. FMS-80 is able to call other programs like subroutines in EFM

- FMS-80 is able to read data files that other programs have generated
- No restrictions to record size other than available RAM memory space
- Operates under CP/M² MP/M² or CDSOS⁴.

FMS-80 allows the flexibility to quickly create

programs that allow data to be entered in a form that a secretary recognizes and generates reports that the manager requires.

If you're continuously asked to do applications programs and don't have time to do it in BASIC, consider FMS-80.

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Software Report Card

DISSAX

	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

System Requirements

- CP/M
- 16K RAM
- Eight-inch single-density disk drive

Price: \$100

CEXC, Inc.
8301 Greensboro Drive, Suite 900
McLean, VA 22102

1K COM file may produce a 26K file of disassembled code. The reason for this anomaly is that DISSAX does not generate TABs (characters for multiple spaces). This inefficient technique makes the P option less useful.

DISSAX has a limited ability to differentiate between code and data. You can override this feature if you desire. In my own test case I found that DISSAX frequently interpreted code as data.

Ease of use and error handling

DISSAX is easy to use. A single CP/M command line starts the program, and there's no interactive facility built in.

I was unable to crash my system by mishandling any of the listed commands. Improper command syntax typically results in a warning message and a controlled program abort back to CP/M.

Documentation

Considering the nature of the software, the documentation is adequate, as it is written for the programmer with some CP/M experience. There is even a brief index to the 14

continued on page 43

MDBS, a data-base-management system for micros

By Tim Barry

Microcomputer data-base managers are all the rage now. Everybody is discovering that data and software are the most valuable parts of their systems. With data comes the need to organize, and with organization comes the data base.

MDBS (Micro Data Base System) is a data-base management system that can help make the job easier.

MDBS is a collection of data-base organization routines. It is not a stand-alone data base. You can use the MDBS data-description language (DDL) routine to define the data base. Then the applications programs (written in higher-level languages) access the data through programs in the MDBS data-management system (DMS).

In addition to the standard packages, DDL and DMS, several MDBS options are available. (They were included with the review copy.)

You use the data-restructuring system (DRS) to reformat a data base for changes to the basic schema. Since it is often difficult to foresee all future applications, and since the alternative to restructuring is both complex and time consuming, DRS is probably a mandatory option for serious users.

The record transaction logger (RTL) is a backup utility that automatically posts all transactions with the data base. This posting function lets you automatically keep an up-to-date backup copy of the data base. Again, the RTL utility is probably a mandatory option for most users.

The Query Report System (QRS) is a report-generator program that lets you define reports that access data in the data base. You can specify a variety of search-and-match criteria using the QRS program even if you're not familiar with the actual structure of the data base. QRS is a useful option but not really necessary for designing your own applications.

The price of MDBS depends upon which packages you select. The basic system of DDL and DMS is \$900; DRS, RTL and QRS are \$300 each. A bundled set of all packages and documentation is \$1500.

This is not cheap software, but it is targeted at a very specific marketplace: application programmers who are building data bases for custom and semicustom applications. MDBS is certainly not a software package for the mass market.

Performance

The MDBS system can run with several microprocessors, disk-operating-systems and host-language combinations. The program is available for Z80, 8080/8085 and 6502 processors. Operating systems the package can run on include: CP/M, Oasis, TRSDOS, North Star DOS and Apple DOS. The host languages include Microsoft FORTRAN, BASIC or COBOL, PL/I/80, Pascal/M and others. The review copy included all packages for CP/M, Z80 and PL/I-80.

The basic procedure for using the

MDBS is straightforward. You define the schema for the entire data base using the data-description language. Then you write the actual application program in the host language, using calls to the data-management system to handle the actual transactions between the program and the data base. The object of the game is to use the MDBS system as a common set of reliable routines to lower the development time required to implement commonly used data-base functions.

The operational specifications of the system are impressive. The number of record types per data base (254) and item types per record type (255) is large enough that the only practical limitations are disk space and memory. Records can be of variable length; each item type, for example, can be up to 9,999 characters long. You can spread files over several disks to increase file capacity. Also, a wide variety of access modes lets you modify, search or delete data records in the

data base.

For programmers, the system supports a full CODASYL-oriented data structure. It has multiple levels of access protection (good for building unified record systems where users only have access to a subset of the data base). The program also supports one-to-one, one-to-many, many-to-one, and many-to-many set types.

The MDBS programs performed without a hitch. I built a small program

continued on following page



The MX-100. Not just better. Bigger.

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Needless to say, the specs on this machine — and especially at under \$1000 — are practically unbelievable. But there's something about the MX-100 that goes far

beyond just the specs; something about the way it all comes together, the attention to detail, the fit, the feel. Mere words fail us. But when you see an MX-100, you'll know what we mean.

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InfoWorld Software Review

Cross Clues, a word-challenge game for the Apple II

By Paul Hollingshead

Polishing your vocabulary skills in competition is the whole idea behind playing Cross Clues. The computer game is similar to crossword puzzle, hangman, Scrabble and Kriss Krosses.

The object of the game is to guess complete words based on the few letters that are shown. Your Apple keeps track of timing and scoring, letting you worry about strategy and the words. The program provides complete instructions on demand, making it easy

to play, even for people with no computer skills.

Features

The game is played on an area that looks like a square crossword puzzle with seven boxes on a side. Usually, seven of the boxes are filled in, their location depending on the word pattern for that particular game. The remaining consonants, of the 21 in the alphabet, are shown in a block below the puzzle. As you "use up" each consonant in a guess, it is removed from the list.

Before the actual play begins, players are asked to enter their names and to pick a time limit of one, two or three minutes for their turn. At the start of the game, one consonant is shown in its proper place on the puzzle. Players take turns guessing words. If you correctly guess a word, you get another word guess. If your guess is not correct, you can choose one of the consonants, and the program then shows

you all the places where that consonant appears.

You must use strategy to try to limit the clues that you leave for your opponent. The trick is to keep from leaving him any obvious words, and to force him to leave some easy ones for you. One method is to reuse a consonant that has already been guessed. That eliminates the possibility of giving any new clues.

You get a point for each new letter that is in the right place if a five-letter

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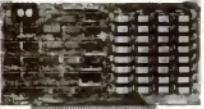
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4 MHz 8080 CPU, 64K RAM, serial I/O port, parallel I/O port, double-density disk controller, ROM BIOS, 16K ROM, system monitor, control and diagnostic software included.

All boards are assembled and tested.

ExpandoRAM III

64K to 256K expandable RAM board



SD Systems has duplicated the famous reliability of their ExpandoRAM I and II boards in the new ExpandoRAM III, a board capable of containing up to 256K of high-speed RAM. Utilizing the new 64K x 1 dynamic RAM chips, you can configure a memory of 64K, 128K, 192K, or 256K, all on one S-100 board. Memory address decoding is done by a programmed bipolar ROM so that the memory can be flip-switch configured to work with either COSMOS or MP/M-type systems or with OASIS-type systems.

Extensive application notes concerning how to operate the ExpandoRAM III with Cromemco, InterSystems, and other popular 4 MHz Z-80 systems are included in the manual.

MEM-65054A 64K A & T \$495.00
MEM-65128A 128K A & T \$629.95
MEM-65192A 192K A & T \$789.95
MEM-65256A 256K A & T \$879.95

VersaFloppy II

Douglas design controller with CP/M 2.2



S-100 bus compatible • IBM 3740 compatible software included • Contains single double-sided drive, single or double density 5 1/4" and 3 1/2" drives in any combination of four simultaneously • Drive select and side select circuitry • Analog phase-locked loop data separator • Vector interrupt operation optional • CP/M 2.2 disk and memory management • Control/diagnostic software PBM included

The VersaFloppy II is faster, more stable and more tolerant of bit shift and "jitter" than most controllers. CP/M 2.2 and all necessary control and diagnostic software are included.

IOD-1160A A & T with CP/M 2.2 \$370.00

SBC-200

2 or 4 MHz single board computer



• S-100 bus compatible • Powerful 4MHz Z-80A CPU • 64K RAM, serial I/O port, parallel I/O port, double-density disk controller, ROM BIOS, 16K ROM, system monitor, control and diagnostic software included.

The SBC-200 is an excellent CPU board to base a microcomputer system around. With on-board RAM, ROM, and I/O, the SBC-200 allows you to build a powerful three-board system that has the same features found in many five-board systems. The SBC-200 can be used with both single-user and multi-user systems.

CPU-200A A & T with monitor \$299.95

ExpandoRAM II

16K to 64K expandable RAM board

16K to 64K expandable RAM board



• S-100 bus compatible • Up to 4MHz operation • Expandable from 16K to 64K • Uses 16 x 1415 memory chips • Page mode operation allows up to 8 memory pages • 8080 compatible • ROM output disable • Invisible on board refresh circuitry

The ExpandoRAM II is compatible with most 32K CPU's. When other SD Systems' series II boards are combined with the ExpandoRAM II, they create a microcomputer system with expanded compatibility and features.

MEM-65030A 16K A & T \$329.00
MEM-65061A 32K A & T \$349.00
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COSMOS

Multi-user operating system

• Multi-user disk operating system • Allows up to 8 users to run independent jobs concurrently • Extended memory up to 256K • ROM BIOS • COSMOS supports all the file structures of CP/M 2.2, and is compatible at the applications program level with CP/M 2.2, so that most programs written to run under CP/M 2.2 or SDOS will also run under COSMOS.

SFC-55009039F COSMOS on 8" disk \$396.00

Multi-User System

SBC-200, 256K ExpandoRAM III, VersaFloppy II, CP/M 2.2

COSMOS Multi-User Operating System, C BASIC II

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Two Z-80A CPUs (4 MHz), 256K RAM, 512K I/O port, double-density disk controller, ROM BIOS, 16K ROM, 256K ROM, 16K of memory, and a ROM BIOS. The SBC-200 is a complete COSMOS interrupt driven multi-user disk operating system, allows up to 8 users to run independent jobs concurrently. C BASIC II, control and diagnostic software in PROM included.

All boards are assembled and tested.

MPC-4

Intelligent communications interface



• Four buffered serial I/O ports • On-board Z-80A processor • Four CTC channels • Independently programmable baud rates • Vectored interrupt capability • Up to 4K of on-board ROM • Up to 2K of on-board RAM • On-board timer

This is not just another four-port serial I/O board; the on-board processor and firmware provide sufficient intelligence to allow the MPC-4 to handle time consuming I/O tasks, rather than leaving demanding CPU tasks to the host. The on-board processor can be modified to make the MPC-4 a host of its own. In combination with the SD Systems' ROM BIOS and COSMOS operating system (which is included with the MPC-4), this board makes a perfect building block for a multi-user system.

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InfoWorld

Software Report Card

Cross Clues

Performance	Poor
Documentation	Fair
Ease of Use	Good
Error Handling	Excellent

System Requirements

- Apple II Plus
- DOS 3.3
- 48K RAM
- One disk drive

Price: \$29.95

Science Research Associates, Inc.

155 North Wacker Drive
Chicago, IL 60606

word had three letters correct previous to your turn, a correct guess of the word would earn two points. When a consonant is first used correctly, the program fills all the other squares in the grid where that consonant is needed. For example, if you guess the word *drift*, based on the clue *desert*—*drift*, you would definitely get two points, and might actually earn four or five points if *r* and *t* are used frequently in the puzzle.

You indicate the start of the word being guessed by using comma and period keys to control movable arrows until they point to the first letter (or if that hasn't been guessed yet, a blank in the word). When appropriate, the program asks about to enter will go down or across the grid.

The program next shows a large asterisk in the position of the first letter to be typed. For corrections, you can backspace by using the left arrow on the keyboard, or you can reset the pointer arrows by striking the space bar.

You can use several other commands during a game. By using three numeric keys or the escape key, you can suppress the sound effects, skip a

word guess, put the game on hold or start play all over again.

The winner of the game is the first person to get 21 points. When each player reaches 13 points, the time allowed for guesses is cut in half. Thus, the going gets tougher as you approach the end. You do have the option of cancelling the time cut.

Performance

The length limit of seven letters for each word cuts out many of the trickier ones, the words that are hard to learn. This hampers the usefulness of the game, for adults anyway. The difficulty level of the games on the demonstration diskette was about the same as an easy crossword puzzle. The manufacturer says that the 50 games on the retail diskette cover the range from easy to hard. The game might do best in a secondary-school English class.

Sound effects are used nicely in this game. Several bars of an appropriate tune are played when the diskette is booted. Tones signify good guesses, bad guesses and the end of the time allowed for each player's turn.

Playing Cross Clues is fun, but it won't keep you going for hours like an adventure game or Asteroids. While you are enjoying the game, it is polishing your vocabulary. The spirit of competition takes your mind off the benefits.

Ease of use

Learning the game is simple. When you boot the diskette the program asks if you want instructions. If you answer Y, the program explains the game and plays against you for a couple of sample turns.

Even when you play the real game, there are ample prompts. Forgetting to point to the arrows at the first letter of the word, not the first blank, is a common minor mistake. Players that aren't

habitual computer users may need to be reminded to strike the return key after each word guess.

Error handling

The game is well armored. Inappropriate answers to the program's questions are simply ignored. If you type too many letters for a word guess, the program just ignores the extra letters. I didn't come across anything that could cause the program to stumble or get confused.

Documentation

One half-page sheet is all that comes with the program. One side contains a

dozen notes on playing the game and a handy grid for marking which of the 50 games you have played. The back side contains advertising and the license agreement.

Despite the brevity, nothing else is really required. The notes and the instructions the program gives you when you first boot up the diskette clearly explain the procedure for playing.

Support

Science Research Associates is an educational publishing firm in Chicago, and Cross Clues is presently its only offering. Company personnel

were willing to answer my questions, but didn't impress me as being a fully developed support group yet.

When asked, an SRA representative said the firm does not have additional volumes of puzzles on other diskettes, or any foreign language versions of the game. For now, the program is available only for the Apple II.

Summary

For a gathering of word-game fans or an English class, Cross Clues is a pleasant mix of vocabulary building and entertainment. The program gives plenty of instructions and doesn't require any knowledge of computers. ■

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Autoscribe

continued from page 37

such as automatic page numbering.

The index provides easy access to all the information in the manual. The manual also gives you some recommended practices in the areas of document revision and control that can be quite useful.

Summary

AutoScribe II is a useful piece of software in spite of its limitations. Most of its operations are simple to understand and execute. Those that aren't are not too difficult to work around.

When you create large documents, you soon become aware of how critical disk space is. If Zenith Data Systems would make AutoScribe II useable on the current level of operating systems, and would correct some of the deficiencies noted above, it would have not just a good but an excellent word-processing system. ■

This product is also being marketed as Electronic Typing.—Editors

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Loop-Hole is a fast, high-resolution action game for two from Accent Software. You win by trapping your opponent in your trail of dots—if your opponent doesn't get you first. An Apple II with 32K and keyboard or game paddles are required. Price is \$29.95. Accent Software, 3750 Wright Place, Palo Alto, CA 94306.

Eiconics has reduced the price of the **Eureka Learning System** to \$495, down from the previous \$995 price. The "unbundling" of the user education from the software system has allowed the reduction. The system provides a means for creating CAI material without prior programming knowledge. You can use graphics and special characters along with text material. A demo disk with three sample lessons and a copy of the teacher's guide is \$25. Eiconics, Inc., 200 Cruz Alta, Taos, NM 87571.

Other

Shasta General Systems announces the **Parrot family** of word- and data-processing business systems based on the Xerox 820 microcomputer. Prices will begin at less than \$5000, including hardware, for a complete word-processing system. Two word-processing software packages—called WP One and WP Two—are available.

WP One features global search, 132-character horizontal scroll, variable pitch, double underline, superscript, subscript and more. WP Two includes an office filing system, document merge, automatic widow/orphan protection, multilevel system security and footnote tie-in. Several data-

processing packages are also available. Shasta also offers applications programs, such as **Sorcim's SuperCalc**, Shasta General Systems, 1329 Moffett Park Drive, Sunnyvale, CA 94086.

CMAR is a file-handling system by Cimarron Corporation for the Commodore CBM business computer. CMAR is a keyed-file access method that provides a foundation for Cimarron's Legal Time Accounting and Medical Accounting packages marketed by

Commodore. The CMAR program is compatible with all present Commodore disk subsystems utilizing the existing disk format. It is written in 6502 machine language and interacts directly with Commodore BASIC 4.0. Cimarron Corporation, 666 Baker Street, Suite 319, Costa Mesa, CA 92626.

Exidy Systems announces the **Financial Software Package**, designed to provide loan processing, installment lending and general banking ap-

plications to users of the Exidy computer. Loan-processing functions include creation, updating, file display, verification and reports. The installment section allows you to calculate annual percentage rate, days between dates and amortization.

The general banking software handles these functions, plus IRA projections, deposit/yield future value, discount note rebate and T-certificate calculations. Exidy manufactures the *continued on following page*

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*See advertisement in *InfoWorld* Vol. 3, No. 12.

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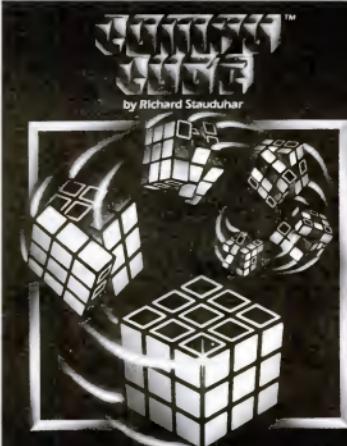
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The **Parrot** family of systems from Shasta combines Xerox 820 hardware with word- and data-processing software.



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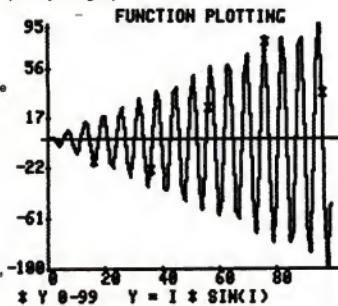
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continued from preceding page
Sorceror Personal Computer, System 80 Desktop Computer and Multi-Net 80 distributed computer systems. Exidy Systems, 1234 Elko Drive, Sunnyvale, CA 94086.

The ZX80 Business Package by Larn-Lem is for the Sinclair ZX80 or MicroAce computers. The package includes Search & Save, which allows storage of text files on cassette and retrieval by keyword or phrase; VideoComp-4, which displays a screen worksheet with three columns and uses a keyboard overlay to perform operations involving entire columns; and VideoGraph, which produces bar graphs of the results obtained with VideoComp-4. A manual, reference cards, a color keyboard overlay and cassette are included. Price is \$9.95. Larn-Lem Labs, Box 2382, La Jolla, CA 92033.

Micro Architect will provide ten business packages for the new IBM Personal Computer in the coming year. They will include general ledger, accounts receivable, accounts payable, payroll, data-base management, text formatter, inventory, mailing list

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and several utilities. The packages will be converted from Micro Architect's TRS-80 software. Micro Architect, Inc., 96 Dothan Street, Arlington, MA 02174.

Phase One Systems has announced its new **Control relational-database-management system** (Version 5.5A) for the Oasis multuser operating system. Control's new subroutines perform convenient break-on and totaling functions. Heading and footing features add further clarity to Control's reports. Other features include a self-prompting program generator, automatic line-wrap ability and a 55-page reference manual. Price is \$695, including the Oasis file-sort option. Phase One Systems, Inc., 7700 Edgewater Drive, Suite 830, Oakland, CA 94621.



Space adventure for the Atari 400 and 800: K-Razy Shoot-Out from K-Byte.

K-Byte introduces a battle of wits and fast action in ROM Form for the Atari 400 or Atari 800. Space commanders and alien droids inhabit **The K-Razy Shoot-Out**, available in a solid-state cartridge (ROM pack) with a 14-page instruction booklet. Price is \$49.95. K-Byte, 1705 Austin, Troy MI 48084.

TSMART is a smart-terminal program for the Atari 800 by The Micro-Peripheral Corporation. TSMART permits transfer of BASIC programs between a remote host computer and an Atari cassette or disk storage device. The autodial feature works in conjunction with the Auto-Microconnection, a direct-connection modem (\$199.50) produced by The Micro-Peripheral Corporation.

You can also transfer source-code assembler files or object (hexadecimal-code) files, such as Atari Music Composer files. The Autobuf feature opens and closes the memory-storage buffer automatically when uploading or downloading. Downloading from Forum 80 bulletin boards is also accomplished automatically.

TSWART will automatically send messages to bulletin boards using the standardized block mode or 16-line prompt-recognition message entry, half or full-duplex operation can be selected with the software. You can use TSMART with any Atari 800 using

an RS-232-compatible modem, although the dialer feature cannot be used with obsolete acoustic modems.

The program is available on cassette with instructions for transference to disk. Price is \$79.95. The Micro-Peripheral Corporation, 2643 151st Place NE, Redmond, WA 98052.

Small businesses that need to generate complex financial statements should investigate the **General Accounting System** for the NEC PC-8000 Series microcomputer. Generally accepted accounting principles are incorporated into this package, designed for beginning computer users. Sample journal entries include general journal, invoice register, merchandise purchases and cash sales. Reports and ledgers include balance sheet, profit-and-loss statement and payroll. Each accounts-receivable diskette allows for 500 or more entries. Price of the General Accounting Systems is \$395. NEC Home Electronics USA, 1401 Estes Avenue, Elk Grove Village, IL 60007.

Rocky Mountain Software Systems announces a complete business-software system for the Xerox 820 and Osborne 1 computers. The system, written in Microsoft's MBASIC, runs on either computer and includes general ledger, accounts receivable, accounts payable and payroll. Price of the complete system is \$269; individual packages are \$79. Rocky Mountain Software Systems, P.O. Box 3282, Walnut Creek, CA 94598.

SMC Systems and Technology announces the availability of SMC BASIC on Fortune Systems' 32/16, a microcomputer-based, 16-bit system that uses the UNIX operating system. With SMC BASIC on the 32/16, you can run IDOL, SMC's data-base-management system, along with BAS (Business Application Software, which consists of Wholesale Distribution and Construction.)

IDOL and its application software are fully transportable between IBM Series/1, MBI/Basis Four, Raxon, Pertec PCC 2000, ONYX C8002 (a Z8000-based machine) and Mercator Business Systems' MBS 3000/4000 computer systems. SMC Systems and Technology, Inc., Proprietary Systems Division, P.O. Box 6800, Bridgewater, NJ 08807.

Now Oasis-operating-system users can watch any program execute. XRAY monitors memory contents in any Oasis multuser memory partition while it is running. It is helpful for multuser program development and debugging in BASIC or assembly language. Price is \$250 for modem delivery of program and mail delivery of manual; \$275 for mail delivery of Onyx-compatible logical tape, plus manual; and \$25 for manual only. Information Technology Corporation, 613 Old Farm Road, Columbus, OH 43213.

TSWART will automatically send messages to bulletin boards using the standardized block mode or 16-line prompt-recognition message entry, half or full-duplex operation can be selected with the software. You can use TSMART with any Atari 800 using

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InfoWorld is unable to test every product announced in this section. All claims attributed to the products have been made by manufacturers or by firms marketing these items.

InfoNews/Hardware

New peripherals

App-I-cache provides 304K RAM for the Apple II computer. The trick is disk emulation: App-I-cache is a 256K memory card that is treated as a diskette by software resident on the card itself. Sorrento Valley Associates, Inc., 11722 Sorrento Valley Road, San Diego, CA 92121.

A new low-power-consumption 64K static-RAM board from SSM op-

erates at 6 MHz and offers up to 8K of EPROM. The board supports extended addressing, appropriate for 16-bit and multuser systems. It sells for "less than \$450" from SSM Microcomputer Products Inc., 2190 Paragon Drive, San Jose, CA 95131.

The **Daisywriter 1000 printer** is a \$1495 daisy-wheel printer that features a cassette-enclosed print wheel for dust-free operation. It can use RS-232, 20-millamp current loop or Centronics 8-bit parallel interfaces, and it

incorporates three CPUs. Computers International, 3540 Wilshire Blvd., Los Angeles, CA 90010.



The Daisywriter 1000 printer

A **high-resolution green-phosphor monitor** compatible with most microcomputers is available from Allen Associates. It has a 12-inch screen and a lightweight case. Allen Associates, 21436 Bramble Way, Canyon Country, CA 91350.



Calcomp's new digitizer table

Calcomp has a new, low-priced **digitizer tablet**. Built around an 8085A CPU and providing RS-232 and 16-bit parallel interface capabilities, from 12x12 to 60x44 inches, that is. The resolution is 1000 lines per inch. California Computer Products (a.k.a. Calcomp), 2411 West La Palma Avenue, Anaheim, CA 92801.

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InfoNews/Hardware



ITT Courier four-color terminal

ITT Courier, a subsidiary of the information behemoth, is selling a **four-color display terminal**. The colors are triggered by the field-attribute byte that normally selects protected or unprotected fields and high or low intensity. ITT Courier Terminal Systems, 1515 West 14th Street, Tempe, AZ 85281.

Computerware now makes a board that expands the memory of the Radio Shack Color Computer from 16K to 32K.

The board, named the **16 Plus Board**, plugs into the computer and fits under the RF shield cover inside it. No software modifications to existing software are required. The 16 Plus Board costs \$84.95. Computerware,

Box 668, 1472 Encinitas Blvd., Encinitas, CA 92024.

Zenith/Heath has added a Winchester disk drive to its business microcomputer line. The **Z-67** provides about 10 megabytes of storage and incorporates a floppy-disk backup unit for another megabyte. With cables and interface card, the Z-67 costs \$3995. Zenith Data Systems, 100 Milwaukee Avenue, Glenview, IL 60025.



Zenith Data Systems' Winchester disk drive

A new static RAM card supplies 32Kx8 and 16Kx16 storage capacity for 8- and 16-bit systems. The access time is under 200 nanoseconds, and memory-management and control functions are supported. Assembled and tested, the board costs \$455; as a

kit, \$395, from I/O Technology, 29119 Flowerpark Drive, Canyon Country, CA 91351.



RAM card from I/O Technology

Dataroyal has introduced a new version of its **IPS-7000** printer, and an up-

grade kit that allows current users to convert to the new features. The new **IPS-7000-A** printer allows variable-sized character printing. One application is bar-code printing. The **IPS-7000-A** sells for \$3080; the upgrade is \$250. Dataroyal Inc., 235 Main Dunstable Rd., Nashua, NH 03060.

New systems

The **Fluke 1720A** from John Fluke Manufacturing is a small computer with a touch-sensitive screen (also small), designed for control and monitoring applications. It comes with one

continued on page 55

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The **Philips SP360 Letter Quality printer** will be sold in the U.S. by **InterSystems**, 2120 Walsh Avenue, Santa Clara, CA 95051.

away from what Computer Automation calls "the elusive upper tester," the best modular, with individual test modules linked to a remote computer. Computer Automation Inc., 2181 DuPont Drive, Irvine, CA 92713.

InfoNews/Hardware

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InfoNews/Hardware

continued from preceding page

New for integrators

A number of new products from semiconductor and electronic-component manufacturers have come to our attention recently, as well as some new products for the OEM, CAD and component-design markets:

Motorola has announced the first five parts in its advanced low-power Shorty line of TTL circuits, including two quad bus transceivers and three octal-buffer/line-driver circuits. Now available for sampling, they are

priced at \$2.60 for the transceivers and \$2.80 for the buffer/drive circuits.

Motorola has also dropped the price (and the power consumption) on its 2048x8 ROM, has added a 16x16 floating gate EEPROM (MCM2801, \$7.20 in quantities of 100 or more), produced a series of four new application notes for 8-bit processors and added four new microcomputer chips to its line.

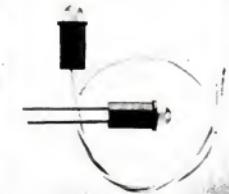
The new microcomputers are all 8-bit 6805 with CPU, clock, I/O, ROM, RAM and a timer. One version includes "phase-locked-loop logic," an-

other has an 8-bit EPROM and a third has A/D conversion. Some of these are available now, while others are due out in December. For details check with Motorola Inc., 3501 Ed Bluestein Blvd., Austin, TX 78721.

303 North Oak Street, Inglewood, CA 90302. And "the industry's first diode quad and diode quad bridges" have been introduced in chip and package form by Dionics, Inc., 65 Rushmore Street, Westbury, NY 11590.



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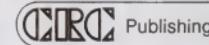
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InfoNews/Hardware



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away from what Computer Automation calls "the elusive super tester." The design is modular, with individual test modules linked to a resource manager. Computer Automation Inc., Industrial Products Division, 2181 DuPont Drive, Irvine, CA 92713.

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Systems, 2118 Walsh Avenue, Santa Clara, CA 95051.

The **Fujitsu SP830 letter-quality printer** will be sold in the U.S. by Intersell. At least Intersell will be the first OEM for the printer; plans are to sell it with The Integrator Intek's interface board, installed. The Integrator facil-

tates interfacing the printer with many popular microcomputers. Intersell, 465 Fairchild Drive, Suite 214, Mountain View, CA 94043.

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Book Reviews

Books feature treatise on robots, probe into privacy

The Year of the Robot

Wayne Chen
dilithium Press
\$7.95

The first half of this book is dull and didactic; the second half is childish and naive. Why, then, is it so touching and sweet?

The first part of *The Year of the Robot* is a series of essays on the "human

traits of robots." To Wayne Chen a robot—as distinguished from a crude machine—is any device that employs feedback mechanisms to constantly compare what it gets with what it wants. There are, of course, millions of such devices used in electronic and mechanical appliances. "The familiar example that we encounter is a guided missile, constantly correcting course as it flies to its target.

Chen claims there are "robot-
osyncrasies"—human-like traits ob-
served in robots. Robots, he asserts,
are broadminded, even tempered and
fair, responsive, reliable and visionary.

In other words, Chen sees a lot to
admire in robots, and he thinks we can
understand and improve the quality of
life in our human society by studying them.
He envisions an "engineering approach"
to the problem of human
existence, and he illustrates his vision
with numerous diagrams and math
formulas.

The second section of the book is
the more endearing. It is a previously
published science-fiction novel Chen
authored under the pen name of
Wayne Hawaii. In it, the fictitious in-
ventor of the robot, Rob (pronounced
"robe," for robot), Tains falls in love
with journalist Helga McGree. The
characters and their adventures em-
body the robotics-humanity philoso-
phy Chen puts forth in the nonfiction
half of the book.

Humanity has lavished acclaim and
riches on the great engineer for ex-
plaining Chen's theories. He is the
featured speaker at engineering society
dinners, and he even speaks before a
joint session of Congress. Tains
owns a Porsche, a hideaway on the
Long Island Sound and is head of his
own aerospace company.

The love story of Rob and Helga is
probably the most charmingly implau-
sible story ever to be set in type. Con-
sider this steamy scene from the pair's
first date when Rob takes Helga back to
her apartment:

"She planted a gentle good-night
kiss on his lips, and said, 'Rob, it has
been a terrific day. Thank you very
much.'



"And then she shook his hand, giv-
ing him a terrific grip, and winked and
bade, 'Good night, Rob.' Half an hour
after the handshake, Rob could still
feel the grip."

The woman has a handclasp that
would make Arnold Schwarzenegger
wince.

This scene occurs just before the
pair consummate their relationship:

"After a succession and repetition of
looking at each other, embracing and
kissing, Helga held Rob's two hands to-
gether, enveloped them with her
hands and gave a terrific squeeze. And
she said, 'Love is not a comma, but a
period. A helluva grip of a period!'"

Helga recounts the incident from
her childhood that inspires this pecu-
liar observation and explains its speci-
ficial significance, but it still seemed
obscure to me.

The explanation worked its magic
on Rob, though, for the next thing you
know:

"Now she again squeezed Rob's
hands with a strong grip. With a slight
contortion on his face, Rob smiled and

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continued from preceding page
 criminal-justice agencies and the policy processes that have impacted most heavily from 1965 to the present in this fine research report by Dr. Marchand.

A comparison of social costs versus social benefits, and the political processes involved in securing privacy without losing the effectiveness of computerized information systems is at the heart of Marchand's analysis.

The book is divided into three sections. The first lays the foundations for the research undertaken, the second presents a case study of the issue and the third assesses the political

and administrative components of privacy regulation in today's society.

The book is based on eight years of research on the impact of criminal-justice information technology on individual rights and on disadvantaged people, from 1972 to 1979. It should be a high-priority reading assignment for all those researching the issue of data bank/privacy interrelationships.

Agencies protect privacy

The useful appendices present: the Criminal Justice Information Control and Protection of Privacy Act of 1975, the Federal Privacy and Security Regu-

lations for Criminal History Information and a comparison of state's progress in adopting privacy and security policies and procedures.

Marchand thoroughly documents the involvement of criminal-justice agencies in taking the initiative to develop privacy and security safeguards for their information systems. He comments perceptively on criminal-justice agencies' involvement in all of the policymaking processes relating to technological innovation, and he reports how they are seeking long-term national policies responsive to their needs.

The politics of privacy, computers and criminal-justice records will be debated heavily in the years to come, due to the increasing involvement of information processing in the lives of all citizens. Marchand's inquiry forms a fine foundation for these future debates.—A. C. Germann

Dr. Germann is former department chairman at the criminal justice program at California State University at Long Beach.

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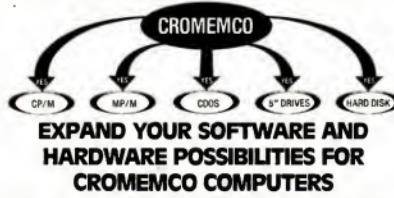
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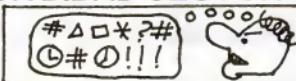
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End of File

Advertisers' Index

Advertiser Service	Page
171 Accountants Microsystems	10
102 Adelphi General Corporation	58
279 Advanced Logic Systems	11
193 Advanced Management Strategies	32,33
* AEI Automated Equipment	36,21
176 Alpa Computer	16
241 Alphatek	35
241 Anchor Pad International	30
191 Arkentekne	55
299 Artistic Software Company	22
271 Atari PCs	17
223 Ation International	38
170 Bourbon Street Press	80
349 Business Software Solutions	22
159 Chang Laboratories	29
* Checks To Go	48
320 CM Associates	36
138 Computer Management	27
127 Computer Service of America	7
242 Computer Wholesale	10
174 Computer Software	31
307 CPU Shop	39
338 CRC Publishing	36
113 CW Communications	30,32
177 Data Intercom	24
211 Designer Software	18
2 Digital Marketing	2
256 Digital Systems Incorporated	55
1 Emeritus Software	38
284 Epic Computer Corporation	58
143 EpicSoft America Incorporated	41
102 EpicSoft International	4
115 FairCom	14
257 Fox and Geller	49
162 G.I. Software	10
180 General Interface	18
* Godbust CompuPro	18
212 Hayden Book Club	14
123 Hitech	12
339 Industrial Electronics	46
111 InfoWorld	45,53,54
102 Innovative Software	5
246 Intercom	49
270 IOTech	36
256 Jade Computer Products	44
337 Jumbo Engineering	42
Link Systems	19
328 Micah	60
195 Micro Application	47
123 Micro Application Group	53
206 Microcomics	23
167 MicroPeripheral Corporation	17
187 Micro Pro International	3
242 MicroSoft	38
293 NIE America	1
153 Orange Micro Incorporated	27
152 Peachtree Software	13
214 Peachtree One Software	13
254 Pickles & Trout	16
327 Pluto Research Group	15
146 Priority One Micro Systems	43
Priority One	43
288 Progressive Software	48
303 Quality Software	48
324 Quantum Software	48
2 Santa Clara Systems	6
166 Scottsdale Systems	46
217 Seattle Computer	8
168 Sematek Information	3
326 Semidisk Systems	51
162 Sierra Data Sciences	37
163 Silicon Systems	37
342 Southwest Computers	58
261 Square One	56
203A Standard Software-America	35
203B Standard Software-America	35
203C Standard Software-America	50
203D Standard Software-America	57
122 Stock Computer	43
210 Streamline	47
164 Systems Plus	40
147 S-Z Software Systems	5
241 Sunsoft	48
307 Vandata	48
228 Vital Information	28
117 Winterhalter & Association	50
101 Zender Corporation	48

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All I want for Christmas is my. . .



By Minnie Floppy

In case you haven't looked at a calendar lately (most computer users don't), it is almost time for the great sleigh to make its yearly flight, bearing gifts.

I had been considering getting hok-
key and doing something on the order
of:

Twas the night before Christmas,
and all through the disk
Not a creature was stirring
not even 8 bits.

but I didn't think you astute and erudi-
te readers would tolerate such
folderol, so I decided instead to
present my Christmas wish list. (Don't
send money, but another 128K of RAM
would do nicely.) Without further ado,
here's what I want to see under my bi-

nary XMAS tree this year:

Plenty of SPAM

You all know that ROM stands for "read-only memory" and that RAM stands for "random-access memory." Perhaps some of you even remember the celebrated WOM write-only memory that made the rounds about five years ago. I've got plenty of all of these goods—what I want is some sequential-process access memory" (SPAM).

As Monty Python fans know, every-
one loves SPAM—it goes well with any-
thing. So fellow SPAM lovers, let's get
off our fannies and unite. I'm sure we
can talk Zilog into making the
sequentially-accessed memory we
dearly love. After all, Zilog has never

Next Time

Our next issue of InfoWorld might be called "Fear and Loathing in Silicon Gulch." But there's no need for you to be frightened. We'll have a special section on *computerphobia*. In it, our fearless reporters will examine such topics as how manufacturers overcome customers' fears and how arcades and pizza parlors are combining to serve as therapists.

A fear of the unknown provides the stuff of which great fiction is made. We'll see why some noted science-fiction writers think we should worry about the advent of computers.

Our writers will also wrap up their coverage of the COMDEX show with more information and analysis of what we can expect from the micro-computer industry during the coming year.

Our software reviews will include a text editor and assembler called Zen, from Zenrad Controls, and Reformatte, from Micro Tech Exports.

shown a profit for a fiscal year yet, so why don't we help the poor folks out of their unbroken string of successive losses by ordering plenty of SPAM?

Osborne decorations

I recently received my Osborne 1 computer. If you haven't seen this \$1795 marvel, you don't know what you're missing.

The thing looks like the dashboard of a cheap Japanese automobile—the only thing missing is a dollop of simulated wood grain. The mottled black plastic is riddled with similar shaped knobs and connectors, and when you operate it in the dark, you can never find the windshield wipers. Oops! I mean reset button.

Perhaps Adam drives an Ish-suzy or whatever they call Japanese Opels these days, and perhaps he doesn't mind having so spartan a plastic vista spread out in front of him. I, on the other hand, think that a large pair of dice to set on the back of the keyboard, a garter belt hanging in front of the five-inch monitor and maybe a small litter bag hanging from the contrast knob would be the final touches that would fully realize the aesthetics Adam is attempting to emulate.

A new language

I'm getting tired of the old languages I've been using. Ada is certainly never really new languages, like D, FITH, COMPLEX, VALTRAN or UNBOL.

Just think of the statements and constructs that have never been realized on computers:

UNCRASH
FASTER
SLOWER
ONCE IN A WHILE
DON'T
FORE
BUG OUT
unnested loops
decompiled code

I'd also like to have a command called GESUNDHEIT, so that I can stop saying that my programs are nothing to sneeze at.

Languages with labels should also be stamped with the government-endorsed "do not remove this label, or you may be fined" message.

In short, I'm tired of FOR/NEXT loops, DOS and line numbers. This Christmas I'd like to find a nice new language when I unwrap my presents—it doesn't even have to have documentation, as that would spoil some of the surprise.

What I don't want

No Christmas wish list would be complete without a list of what I don't want. There's only one thing I don't want, and that's another T-shirt from a reader which says that "I have dual minnie nipples."

Come on, fellas, give me a break. The way I eat, I'm surprised none of you have sent in a "Mine are double density" T-shirt. If you have to send me a T-shirt, just make it say, "Who is Minnie Floppy?"



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